

Barbara A. Campbell

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Systems

**OS/VS Message Library:
VS2 System Codes**

VS2 Release 3.7

IBM

Fourth Edition (January, 1976)

This is a major revision of, and obsoletes, GC38-1008-2. See the Summary of Amendments following the Contents. Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

This edition with Technical Newsletter GN28-2633 applies to release 3.7 of OS/VS2 and to all subsequent VS2 releases until otherwise indicated in new editions or Technical Newsletters. Changes are continually made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest *System/370 Bibliography*, GC20-0001, for the editions that are applicable and current.

Requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, Publications Development, Department D58, Building 706-2, PO Box 390, Poughkeepsie, N.Y. 12602. Comments become the property of IBM.

This publication lists the system completion codes and wait state codes for OS/VS2. Each code is explained, and where appropriate, a programmer response is suggested. Problem determination actions accompany problem identifying codes; you should perform the actions before calling the IBM branch office serving your locality for either programming or hardware support.

Associated Publications

This publication contains references to other publications or to procedures and concepts documented in other publications.

These publications include:

IBM Data Processing Glossary, GC20-1699

OS/VS Data Management Macro Instructions, GC26-3793

OS/VS Data Management Services Guide, GC26-3783

OS/VS2 Supervisor Services and Macro Instructions, GC28-0683

OS/VS2 I/O Supervisor Logic, SY26-3823

OS/VS2 System Programming Library: Service Aids, GC28-0674

OS/VS2 Planning Guide for Release 2, GC28-0667

A list of the books belonging to the *OS/VS Message Library* is contained in figure 2 of this publication.

Contents

Summary of Amendments	7
Introduction	9
System Completion (ABEND) Codes	15
Wait State Codes	57
Uncoded Wait States	67
Loops	69
I Problem Determination (Tables I, II, and III)	70

Figures

Figure 1. Customizing Your Message Library	10
Figure 2. OS/VS Message Library	11
Figure 3. OS/VS2 Message Directory	12
I Figure 4. Problem Determination (Tables I, II, and III)	70

**Summary of Amendments
for GC38-1008-3
as Updated by GN28-2633
OS/VS2 Release 3.7**

This Technical Newsletter documents four new system completion codes: E82, E83, E84, and E85.

**Summary of Amendments
for GC38-1008-3
OS/VS2 Release 3.7**

Changes have been made throughout this publication to reflect a Service Update - OS/VS2 Release 3.7. In addition, pertinent technical and editorial changes have been made.

System Completion Codes

The following new system completion codes have been added:

0FC, 20F.

The following codes have been changed:

03D, 043, 045, 106, 206, 219, 306, 722, 72A, A00.

The following codes have been deleted:

3FE, 4FE.

Wait State Codes

The following new wait state codes have been added:

02F, A27.

The following codes have been changed:

024, 064.

**Summary of Amendments
for GC38-1008-1
as Updated by GC38-1008-2
OS/VS2 Release 3**

System Completion Codes

The following new system completion codes have been added:

0A8, 0A9, 0AA, 17A, 17D, 37A, 37D, 402, 47A, 47D, 502, 57D, 67D, 77D, 87D

Changes have been made to the following system completion codes:

008, 032, 15C, 172, 306, 800

The following system code has been deleted:

08A, 00B, 00D

Wait State Codes

The following new wait state codes have been added:

026, 027, 029, 02D, 02E, 03B

Uncoded Wait States section.

Introduction

The OS/VS Message Library is designed so that you can have the messages and codes documentation that fits your specific needs. You no longer have to maintain an enormous manual.

If you are a system programmer or installation manager, you may want to have all the books in the Message Library in a consolidated document.

If you are an operator, you may want to include *System Messages* and *System Codes* in your Operator's Library.

If you are an assembler language programmer, you may want to have *System Messages*, *System Codes*, *Linkage Editor and Loader Messages*, and the message section from the *Assembler Language Programmer's Guide* in a consolidated document.

If you are a COBOL programmer, you may want *Utilities Messages* added to your COBOL programmer's guide.

In any case, you can select the appropriate books to build a Message Library to meet your needs.

Basic Books

Each installation will require at least one copy of *VS1 System Messages* or *VS2 System Messages*. You will receive at the console or in your output listings, some subset of the

messages in these books no matter which options have been included in your operating system. All programming personnel, especially operations personnel, will require access to these books; although it may not be necessary for applications oriented personnel to have their own copies.

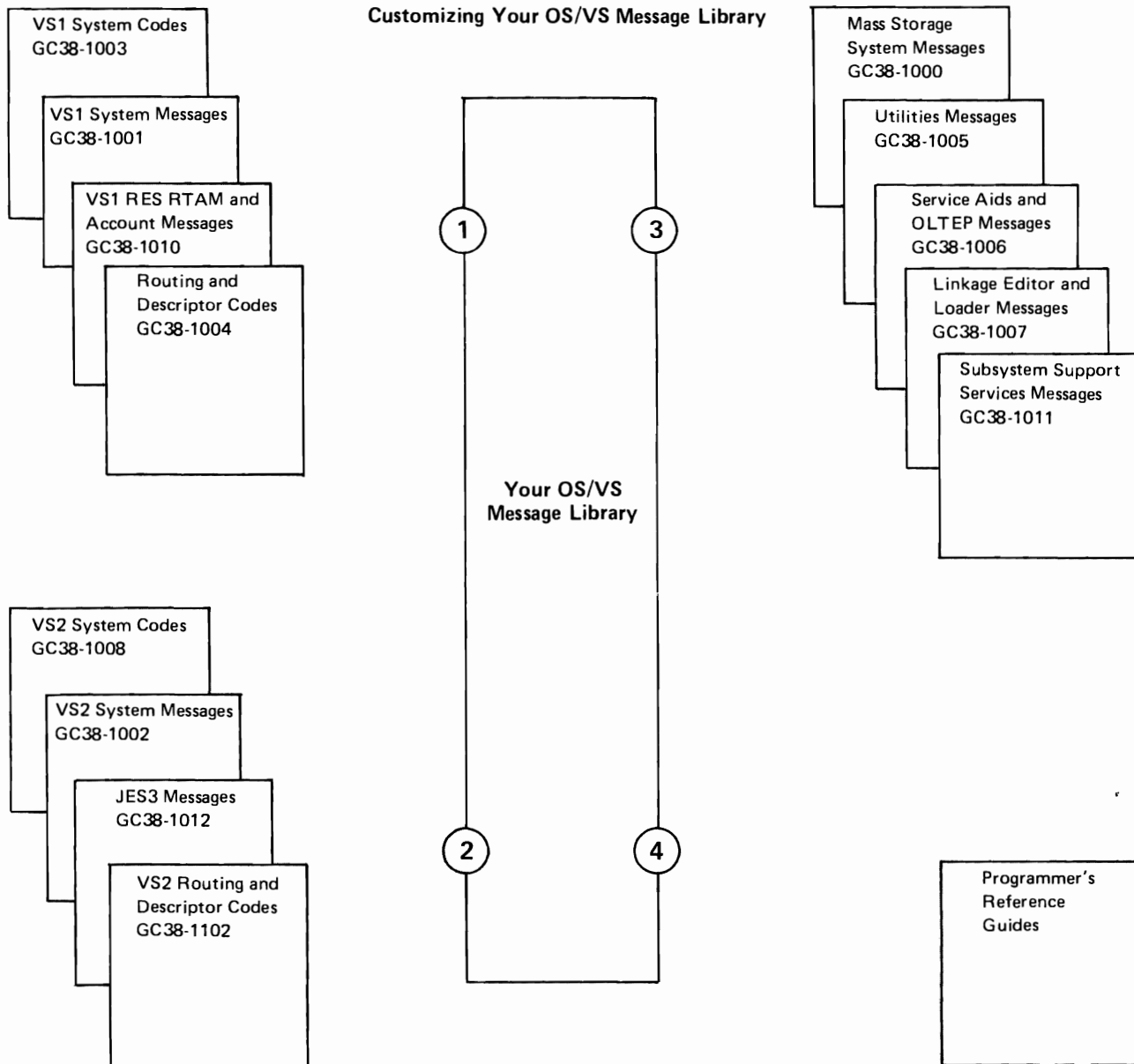
Each installation must have at least one copy of *VS1 System Codes* or *VS2 System Codes* which contains the system completion codes and wait state codes. All programming personnel, especially operations personnel, will require access to one of these books, although applications oriented personnel may not need to have their own copies.

Optional Books

Routing and Descriptor Codes contains routing and descriptor codes for all messages that have these codes. Your installation's system programmer will need this book, especially if your operating systems have multiple console support (MCS).

Depending on your requirements, you may want to have copies of *Utilities Messages*, *Service Aids and Oltep Messages*, or *Linkage Editor and Loader Messages*. Select the books that you need, and keep them either in the appropriate System Library Manual or in your customized Message Library.

Customizing Your OS/VS Message Library



- 1 Select the VS1 publications that are compatible with your system.
- 2 Select the VS2 publications that are compatible with your system.
- 3 Select the shared, supplementary messages publications that fit the needs of your installation.
- 4 If your installation uses a particular compiler or application program, you may want to append the program's messages to your message library. These messages are located in the associated programmer's reference guides.

Figure 1. Customizing Your OS/VS Message Library

OS/VS Message Library

Publication	Order Number	Contents
<i>Mass Storage System Messages</i>	GC38-1000	ICB, ICG messages
<i>VS1 System Messages</i>	GC38-1001	IEA, IEC, IED, IEE, IEF, IEI, IFA, IFB, IGF, IHB, IHJ, IHK messages
<i>VS2 System Messages</i>	GC38-1002	HASP, ICF, IDA, IDC, IEA, IEC, IED, IEE, IEF, IEI, IFA, IFB, IGF, IHJ, IKJ, IKM, ILR, IPD, IQA, IRA, IRB, IST messages
<i>VS1 System Codes</i>	GC38-1003	all VS1 completion and wait state codes
<i>Routing and Descriptor Codes</i>	GC38-1004	all VS1 routing and descriptor codes
<i>Utilities Messages</i>	GC38-1005	IBC, IEB, IEH messages
<i>Service Aids and OLTEP Messages</i>	GC38-1006	A/HHL, A/HMA, A/HMB, A/HMD, IFC, IFD, IMC, ISDA messages
<i>Linkage Editor and Loader Messages</i>	GC38-1007	IEW messages
<i>VS2 System Codes</i>	GC38-1008	all VS2 completion and wait state codes
<i>VS1 RES RTAM and Account Messages</i>	GC38-1010	IFS and IKJ messages
<i>Subsystem Support Services Messages</i>	GC38-1011	BQB messages
<i>JES3 Messages</i>	GC38-1012	IAT messages
<i>VS2 Routing and Descriptor Codes</i>	GC38-1102	all VS2 routing and descriptor codes
In other publications:		
Emulator publications	See: <i>IBM System/370 Bibilography,</i> GC20-0001	emulator messages
<i>IBM 3790 Communication System: Programmer's Reference</i>	GC27-0016	BQI messages
<i>Problem Determination Aids and Messages and Codes for Graphic Programming Services (GPS) and Graphic Subroutine Package (GSP)</i>	GC27-6974	IFF messages
<i>DOS/VS and OS/VS TOLTEP for VTAM</i>	GC28-0663	ITA messages
<i>OS/VS System Modification Program (SMP)</i>	GC28-0673	HMA messages
<i>OS/VS – VM/370 Assembler Programmer's Guide</i>	GC33-4021	IFO messages
<i>VS2 TSO Terminal Messages Directory</i>	SY28-0654	IKJ messages

Figure 2. OS/VS Message Library

Prefix	Component	Publication Title	Order Number
AHL	Generalized Trace Facility	Service Aids and OLTEP Messages	GC38-1006
AMA	AMAPTFLE AMASPZAP	Service Aids and OLTEP Messages	GC38-1006
AMB	AMBLIST	Service Aids and OLTEP Messages	GC38-1006
AMD	AMDPRDMP AMDSADMP	Service Aids and OLTEP Messages	GC38-1006
BQB	Subsystem Support Services	Subsystem Support Services Messages	GC38-1011
BQI	3790 Communication	IBM 3790 Communication System: Programmer's Reference	GC27-0016
HASP	JES2	VS2 System Messages	GC38-1002
HHL	Generalized Trace Facility	Service Aids and OLTEP Messages	GC38-1006
HMA	HMAPTFLE HMASPZAP HMASMP	Service Aids and OLTEP Messages System Modification Program	GC38-1006 GC28-0673
HMB	HMBLIST	Service Aids and OLTEP Messages	GC38-1006
HMD	HMDPRDMP HMDSADMP	Service Aids and OLTEP Messages	GC38-1006
IAT	JES3	JES3 Messages	GC38-1012
IBC	Independent Utility	Utilities Messages	GC38-1005
ICB	Mass Storage System Communicator	Mass Storage System (MSS) Messages	GC38-1000
ICF	Power Warning Feature	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
ICG	Mass Storage Control Table Create	Mass Storage System (MSS) Messages	GC38-1000
IDA	VSAM Control Block Expansion	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IDC	Access Method Services	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IEA	Supervisor	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IEB	Data Set Utility	Utilities Messages	GC38-1005
IEC	Data Management	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IED	Telecommunications Access Method	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IEE	Master Scheduler	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IEF	Job Scheduler	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002

Figure 3. Message Directory (Part 1 of 2)

Prefix	Component	Publication Title	Order Number
IEH	System Utility	Utilities Messages	GC38-1005
IEI	System Generation	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IEW	Loader and Linkage Editor	Linkage Editor and Loader Messages	GC38-1007
IFA	SMF Dump Program	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IFB	Environment Recording	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IFC	IFCEREPO IFCDIP00	Service Aids and OLTEP Messages	GC38-1006
IFD	Online Test Executive	Service Aids and OLTEP Messages	GC38-1006
IFF	Graphic Programming Services	Problem Determination Aids and Messages and Codes for GPS and GSP	GC27-6974
IFO	Assembler	OS/VS - VM/370 Assembler Programmer's Guide	GC33-4021
IFS	RTAM	VS1 RES RTAM and Account Messages	GC38-1010
IGF	Recovery Management	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IHB	Macro Expansion	VS1 System Messages	GC38-1001
IHJ	Checkpoint/Restart	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IHK	CRJE	VS1 System Messages	GC38-1001
IKJ	Time Sharing Option	VS2 System Messages OS/VS2 TSO Terminal Message Directory	GC38-1002 SY28-0654
	Account Facility	VS1 RES RTAM and Account Messages	GC38-1010
IKM	PL/I Syntax Checker	VS2 System Messages	GC38-1002
ILR	Auxiliary Storage Management	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
IMC	IMCJOBQD IMCOSJCD	Service Aids and OLTEP Messages	GC38-1006
IPD	FORTTRAN Syntax Checker	VS2 System Messages	GC38-1002
IQA	Dynamic Support System	VS1 System Messages VS2 System Messages OS/VS Dynamic Support System	GC38-1001 GC38-1002 GC28-0640
IRA	Resource Management	VS2 System Messages	GC38-1002
IRB	MF/1	VS2 System Messages	GC38-1002
ISDA	ISDASDAO	Service Aids and OLTEP Messages	GC38-1006
IST	VTAM	VS1 System Messages VS2 System Messages	GC38-1001 GC38-1002
ITA	DOS/VS and OS/VS TOLTEP	TOLTEP for VTAM	GC28-0663

Figure 3. Message Directory (Part 2 of 2)

System Completion Codes

Completion codes are issued by the control program and the problem program to indicate why a task or memory has abnormally terminated.

Abnormal termination occurs when the control program or problem program issues the ABEND macro instruction.

System completion codes indicate the control program has determined that a task or memory cannot continue processing and expect valid results. For example, the task may have attempted an invalid operation, or an input/output operation may have failed. In such a case, the system terminates the task and supplies the completion code to indicate the reason for the termination. The code may be any three-digit hexadecimal number.

User completion codes are an indication that the problem program has determined that its processing is in error and that it cannot continue processing, expecting valid results. For example, a problem program may be producing a grand total by successive additions to a subtotal. After each addition, the resulting subtotal is compared to a limit. If the subtotal exceeds the limit, the problem program issues the ABEND macro instruction requesting abnormal termination and, perhaps, abnormal termination services such as a diagnostic dump. The user completion code is supplied by the problem program as a four-digit decimal number coded in the ABEND macro instruction.

Completion Code Format:

The system and user codes appear together in the task completion code field (TCBCMP) of the task control block (TCB) for the terminated task.

For abnormal termination by the control program, the system code is one of the codes listed in this publication, and the user code is 0000.

For abnormal termination by the user, the system code is 000.

Abnormal Termination of Subtasks:

Abnormal termination of the highest level task in a job step causes abnormal termination of the job step. Normally, abnormal termination of a subtask terminates only the subtask itself and its subtasks. Subtask termination is indicated by the completion code in the event control block (ECB) specified when the subtask was attached, and the TCBCMP field of the task control block (TCB) of the subtask.

An abnormally terminating subtask, at a low level, can indirectly cause abnormal termination of the entire job step. To do so, each subtask in the job step's task chain must abnormally terminate itself upon finding a completion code indicating that one of its lower-level tasks has abnormally terminated. Eventually, the highest level task terminates abnormally, thus, abnormally terminating the job step. To terminate the entire job step with the completion code indicating the error in the failing subtask, each subtask (going up the task chain) must use the completion code from its subtask as its own completion code.

A subtask can also cause abnormal termination of the entire job step if the STEP operand has been coded in the ABEND macro instruction.

Note: Only the system codes are listed and explained in this publication. User codes are meaningful only for the specific application, and therefore cannot be explained here.

001 *Explanation:* An input/output error condition was encountered during execution of (1) a BSAM, BISAM, or BDAM CHECK macro instruction, or (2) a QSAM GET or PUT macro instruction.

- In case 1, the control program found that the data control block (DCB) did not contain the address of a SYNAD routine; therefore, control could not be given to a SYNAD routine and the task was abnormally terminated.
- In case 2, the DCBEROPT field of the data control block contained the terminate (ABE) option; therefore, the task was abnormally terminated (possibly the result of GET after EOD).

Programmer Response: In case 1, specify the address of an error analysis routine to be given control when an input/output error is detected. (This can be provided by the problem program or by the SYNAD operand of the DCB macro instruction.) Then execute the job step again.

In case 2, if desired, specify ACC or SKP in the EROPT operand of the DCB macro instruction. Be sure that the problem program does not issue a GET after EOD. Then execute the job step again.

Problem Determination: Table I, items 1, 2, 3, 5a, 15, 29.

002 *Explanation:* The error occurred while the control program was processing a sequential data set with BSAM or QSAM, creating a direct organization data set, or opening an ISAM data set for QISAM load mode. This system completion code is accompanied by message IEC036I. Refer to the explanation of message IEC036I for complete information about the task that was terminated and for an explanation of the return code found in register 15.

System Action: For all return codes except 2C, message IEC036I is issued, pertinent control blocks are written to the GTF trace data set, and the user's DCB ABEND exit is taken if one is provided.

Programmer Response: Probable user error. See message IEC036I for the appropriate responses for each return code.

Problem Determination: Table I, items 1, 3, 5a, 15, 29. Table II, format 3.

003 *Explanation:* The error occurred during end-of-block processing using either BSAM or QSAM. The error occurred because the I/O macro instructions for a 3525-associated data set were not executed in the proper sequence.

The contents of register 15 indicate the nature of the error:

Register 15

Contents in

Hexadecimal	Explanation
'01'	A READ sequence error
'02'	A PUNCH sequence error
'03'	A PRINT sequence error

System Action: The system terminates the task.

Programmer Response: Probable user error. Specify the I/O macro instructions in the proper sequence, and rerun the job.

Problem Determination: Table I, items 1, 5a, 15, 16, 29.

004 *Explanation:* The error occurred during OPEN processing using either BSAM or QSAM because a conflicting or invalid DCB parameter (FUNC or related parameter) is specified.

The contents of register 15 indicate the nature of the error:

Register 15

Contents in

Hexadecimal	Explanation
'01'	Invalid DCB FUNC parameter specified.

'02'	Invalid combination of DCB FUNC parameter and CNTRL macro specified.
'03'	Conflicting access methods specified.
'04'	Invalid DCB specified for 3505 or 3525.
'05'	Invalid format card or an invalid device specified with Optical Mark Read (OMR).
'06'	Data protection image not found in the SYS1.IMAGELIB data set, volume containing SYS1.IMAGELIB not mounted, or SYS1.IMAGELIB data set not cataloged.

System Action: In all cases, the system terminates the task.

Programmer Response: Probable user error. In all cases, correct the invalid fields of the DCB macro instruction and rerun the job.

Problem Determination: Table I, items 1, 5a, 15, 16, 29.

005 *Explanation:* The error occurred during READ processing using BSAM because of an invalid DECB. This system completion code is accompanied by message IEC041I. Refer to the explanation of message IEC041I for complete information about the task that was terminated and for an explanation of the return code, rc in the message text.

System Action: The task is terminated.

Programmer Response: Make sure that the RBL type of read is used and that the area address and header address parameters are specified so that the DECB is valid.

Problem Determination: Table I, items 1, 5a, 15, 16, 29.

006 *Explanation:* The program had incorrect authorization to run a 1419. This completion code is accompanied by message IEC102I.

System Action: The task is terminated.

Programmer Response: See message IEC102I for the proper response.

Problem Determination: Table I, items 1, 17b, 29.

008 *Explanation:* The error occurred during execution of a SYNAD routine. The routine was given control following execution of a BSAM CHECK macro instruction.

The SYNAD routine returned control to the control program for the CHECK macro instruction.

Programmer Response: Probable user error. Correct the SYNAD routine so that the control program save area is not destroyed. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

Operator Response: Probable user error. Restart the system.

Problem Determination: Table I, item 29. Take a diagnostic dump.

013 *Explanation:* The error occurred during execution of an OPEN macro instruction. This system completion code is accompanied by message IEC141I. Refer to the explanation of message IEC141I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC141I.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

020 *Explanation:* The error occurred during execution of a BDAM OPEN macro instruction.

The control program found that the DCBMACRF field of the data control block did not contain an A, K, or I, or an attempt was made to open a BDAM data set that contained zero extents.

System Action: The system terminates the task.

Programmer Response: Probable user error. In the first case, make sure that A, K, or I is specified in the MACRF operand of the DCB macro instruction. Verify that the DCBMACRF field was not incorrectly modified by the problem program before the opening process. After making corrections, reassemble the program and execute the job step again. In the second case, create the data set before attempting to open it as a BDAM file.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

028 **Explanation:** A paging operation has not completed successfully due to one of the following:

- A permanent I/O error occurred while attempting a page-in operation. The data being paged in is lost.
- A real storage management routine or another system routine performing a service for RSM suffered an indeterminate error. The function performed is terminated. SYS1.LOGREC will usually contain recorded data related to the problem causing this abnormal termination.

System Action: The affected task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 1, 2, 5a, 15, 29.

030 **Explanation:** The error occurred during execution of a BISAM or QISAM OPEN macro instruction.

The control program found that the DCBMACRF field of the data control block (DCB) did not indicate a valid mode of operation for BISAM or QISAM. The DCBMACRF field is set up by the MACRF operand of the DCB macro instruction or by the problem program before the data control block is opened.

Programmer Response: Probable user error. Make sure that a valid mode of operation is specified in the MACRF operand of the DCB macro instruction. Verify that the DCBMACRF field was not incorrectly set up or modified by the problem program. After making corrections, reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

031 **Explanation:** An input/output error occurred during processing using QISAM. The control program attempted to pass control to an error analysis (SYNAD) routine, but found that (1) the DCBSYNAD field of the data control block did not contain the address of a valid SYNAD routine, or (2) the error occurred after a CLOSE macro instruction was executed by task termination (the problem program returned control to the supervisor without executing a CLOSE macro instruction). The task was abnormally terminated.

The DCBEXCD1 and DCBEXCD2 fields of the data control block indicate the possible causes of the original error:

DCBEXCD1:

Bit	Meaning
0	Lower key limit not found.
1	Invalid device address for lower limit.
2	Space not found.
3	Invalid request.
4	Uncorrectable input error.
5	Uncorrectable output error.
6	Block could not be reached (input).
7	Block could not be reached (update).

DCBEXCD2:

Bit	Meaning
0	Sequence check.
1	Duplicate record.
2	DCB closed when error detected.
3	Overflow record.

4 PUT: length of field greater than length indicated in DCBLRECL field of the data control block.

5-7 (Reserved bits).

Programmer Response: Examine the DCBEXCD1 and DCBEXCD2 fields of the data control block to determine the cause of the error. Specify the address of an error analysis routine to be given control when an input/output error is detected and, for errors occurring during CLOSE, execute a QISAM CLOSE macro instruction prior to returning control to the supervisor. For errors occurring during the execution of a QISAM CLOSE macro instruction, respond as indicated by message IEC011I or IEC203I.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

032 **Explanation:** The error occurred during execution of a BISAM or QISAM OPEN macro instruction.

The control program found that the DCBMACRF field of the data control block (DCB) did not contain valid information for ISAM.

Programmer Response: Probable user error. Make sure that valid information is specified in the MACRF operand of the DCB macro instruction. Verify that the DCBMACRF field was not incorrectly modified by the problem program before the opening process.

After making corrections, reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

033 **Explanation:** The error occurred during execution of an OPEN macro instruction for an indexed sequential data set:

- An input/output error occurred while reading the highest level index.
- An input/output error occurred while searching for the end-of-file mark following the last data record in the prime and independent overflow areas. The DCBLPDA and DCBLIOV fields of the data control block (DCB) contain, respectively, the addresses of the last records in the prime and independent overflow areas.
- The DCBMSHI field of the data control block contained an address that either specified a location outside the boundaries of the virtual storage assigned to the task or had a storage protection key other than that specified in the task control block (TCB).
- An input/output error occurred while reading the last prime data block during open processing for resume load.
- All volumes of a multivolume ISAM data set were not mounted.

Programmer Response: Verify that the DCBLPDA, DCBLIOV, and DCBMSHI fields were not incorrectly specified or modified by the problem program. After making corrections, reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

034 **Explanation:** The error occurred during execution of a BISAM OPEN macro instruction.

For variable length records, the control program found that the address in DCBMSWA was not valid. Either the address is outside the boundaries of virtual storage or the protection key of that address is not the same as the protection key in the TCB.

The control program found that the fields of the data control block (DCB) indicated a virtual storage area too small to contain the highest level index for the data set. The size of the virtual storage area that should be reserved for the highest level index is placed in the DCBNCBHI field of the data control block at OPEN exit time.

Programmer Response: Probable user error. The error can be corrected by one of the following:

- Specify a valid address in the MSHA operand of the DCB. Verify that this field has not been incorrectly modified.
- Provide a sufficient virtual storage area by proper specification of the DCBSMSI and DCBMSHI fields.
- Provide no virtual storage area and either do not specify the contents of the DCBSMSI and DCBMSHI fields or set the fields to zero. The highest level index can then be processed without being loaded into virtual storage.

After making corrections, reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

035 Explanation: The error occurred during execution of a BISAM OPEN macro instruction.

The control program found that new records were to be added to the data set, but the DCBMSWA and DCBSMSW fields of the data control block (DCB) indicated a virtual storage area too small to contain one track from the prime area.

Programmer Response: Probable user error. The error can be corrected by one of the following:

- Provide a sufficient area by proper specification of the DCBMSWA and DCBSMSW fields. The minimum DCBSMSW field must indicate one track capacity plus one record.
- For fixed-length records, provide no virtual storage area and either do not specify the contents of the DCBMSWA and DCBSMSW fields or set the fields to zero. A virtual storage work area is required only for variable-length records.

After making corrections, reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

036 Explanation: The error occurred during execution of a BISAM or QISAM OPEN macro instruction.

The control program found that no space was allocated on a direct access device as the prime area for the data set:

- In QISAM load mode, during data set generation, the SPACE parameter of the DD statement did not specify a primary quantity.
- The data set control block (DSCB) for the data set was incorrectly modified by the problem program.

Programmer Response: Probable user error. In the first case, the data set should be dumped sequentially and recreated using QISAM load mode. The job should be restarted with a primary quantity specified in the SPACE parameter of the DD statement. If the prime area is to span more than one volume, the number of volumes and the number of units required should be specified.

In the second case, verify that the data set control block was not incorrectly modified by the problem program. After making corrections, reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

037 Explanation: The error occurred during execution of a BISAM or QISAM OPEN macro instruction.

The control program found that the buffers supplied by the programmer were inadequate for the records to be processed:

- If the buffers were acquired by use of the BUILD macro instruction, either the BUFNO operand of the DCB macro instruction was not specified or the BUFL operand specified too small a value.
- If the buffers were acquired by use of the GETPOOL macro instruction, the buffer length operand specified too small a value.

Programmer Response: Probable user error. Specify the buffers correctly. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

038 Explanation: The error occurred during execution of an OPEN macro instruction for QISAM load mode.

The control program found that the space on a direct access device which had been allocated for the index area was either exhausted or occupied more than one volume. The index for an ISAM data set must reside on one volume.

Programmer Response: Probable user error. If a new data set is being created, the job must be restarted with larger space allocation specified in the SPACE parameter of the DD statement.

If an old data set is being updated, the data set should be dumped sequentially, the old data set scratched, and the data set recreated from the sequential data set using QISAM load mode. The job should be restarted with larger space allocation specified in the SPACE parameter of the DD statement.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

039 Explanation: The error occurred in scanning a data set using QISAM.

The end of the data set (EOD) was reached. The control program found that the DCBEODAD field of the data control block (DCB) did not contain an end-of-data-set exit routine address.

Programmer Response: Probable user error. Make sure that the address of a routine to be given control when the end of the data set is reached is specified either in the EODAD operand of the DCB macro instruction or in the problem program before the end of the data set is reached. Then reassemble the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

03A Explanation: The error occurred during execution of a BISAM or QISAM CLOSE macro instruction.

A format 2 data set control block (DSCB), read from a direct access device into virtual storage, was updated from various fields of the data control block (DCB). When an attempt was made to write the updated data set control block back to the direct access device, an input/output error occurred.

Programmer Response: Rerun the job.

Problem Determination: Table I, items 1, 3, 5a, 15, 25b, 29.

03B Explanation: The error occurred during execution of an OPEN macro instruction for an indexed sequential data set. No records could be processed because:

1. The format 2 data set control block (DSCB) indicated that the data set had not been created.
2. The format 2 DSCB indicated that the data control block had not been closed after the data set had been created.
3. The DCBRKP field of the data control block was not valid.
4. The DCBKEYLE field of the data control block was zero.
5. A QISAM data control block was being opened in preparation for a PUT operation, but the OPEN macro instruction had not been issued for output.
6. There is an error in specification of LRECL or BLKSIZE.
Either:
 - a. The block size (DCBBLKSI) is less than the logical record length (DCBLRECL).
 - b. The logical record length (DCBLRECL) is zero.
 - c. The block size (DCBBLKSI) is not a multiple of the logical record length (DCBLRECL).

7. A QISAM data control block was being opened in preparation for a PUT operation and DISP = SHR was coded in the JCL.

Programmer Response: In case 1 and 2, make sure that the data set has been properly created and that the creating task closes the data control block.

In case 3, make sure that the value of the DCBRKP field of the data control block, when added to the value in the DCBKEYLE field, does not exceed the value in the DCBLRECL field. If variable length records are used, make sure that the value of the DCBRKP field is not less than 4.

In case 4, make sure that the DCBKEYLE field in the data control block does not contain zero.

In case 5, make sure that OUTPUT is specified as option 1 in the OPEN macro instruction.

In case 6, make sure that the block size (BLKSIZE) and logical record length (LRECL) have been specified correctly and that they are compatible.

In all cases, execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

03D *Explanation:* The error occurred during execution of (1) a QISAM or BISAM OPEN macro instruction or (2) a BDAM OPEN macro instruction.

One of the following occurred:

- In case (1), the DD statement did not specify an indexed sequential organization (which can be specified by a DSORG = IS or DSORG = ISU subparameter of the DCB parameter).
- In case (1), if the data set resides on multiple volumes, either the volume serial numbers in the SER subparameter of the VOLUME parameter of the DD statement were not in proper sequence, or not all volume serial numbers were specified. The serial number of the volume containing the index must be listed first. The number of volumes and the number of units allocated must be the same, and all volumes must be mounted.
- In case (2), the volume serial numbers in the SER subparameter of the VOLUME parameter of the DD statement were not in proper sequence.
- In case (2), the DCB DSORG = DA and the DD statement specifies an indexed sequential data set name.

This system completion code is sometimes accompanied by message IEC156I. If so, refer to the explanation of message IEC156I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Probable user error. Correct the DCB parameter or SER subparameter, as necessary, and execute the job step again.

If this system completion code is accompanied by message IEC156I, respond as indicated for the message.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

03E *Explanation:* The error occurred during execution of a QISAM OPEN macro instruction. The position of the last prime data record indicated that there is no room to add records with resume load.

The loading of an indexed sequential data set must be completed during the initial OPEN/PUT/CLOSE cycle for that data set. An indexed sequential data set which has been opened and closed for loading may be subsequently loaded if no data was created.

Possibly, an attempt was made to add records with resume load to the prime area of an ISAM data set which had no space available for additional records.

Programmer Response: Either load the data set again with a larger space allocation, or add records using BISAM. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

040 *Explanation:* The error occurred during execution of an OPEN macro instruction for a TCAM line group data set.

System Action: The error code is inserted into register 0 if the user has coded an address in the EXLST = operand of the line group DCB macro instruction. The exit routine may examine the code in register 0. If no user exit is specified, an indication of the error type may be found in the explanation of console message IED008I.

Valid error codes in register 0 indicate the nature of the error.

Register 0 Contents in Hexadecimal	Explanation
01	There is not enough main storage to build a data extent block (DEB) for a line group data set.
02	Incompatible stations are specified in the same line group.
03	The Device Class field of the first unit control block (UCB) for a station in the line group specifies something other than a telecommunication or graphic device.
04	An unsupported control unit is specified for this line group.
05	The adapter type and model code bits in a unit control block specify something other than those devices supported by TCAM.
06	The device characteristics specified for stations in this line group are not consistent with the devices specified on the DD statement.
07	There is not enough main storage to build a line control block (UCB) for a line group.
08	There is not enough main storage to build a station control block (SCB) for a switched-line.
09	The binary synchronous interface specified in the data control block (DCB) does not agree with that specified in a unit control block for a line in this line group.
11	No valid UCB addresses were found for this line group; all UCB addresses checked were zero.
12	The buffer size specified for a line group is too small.
13	There is no data set for the type of queuing specified by the terminal table entry.
14	The QUEUES = operand of a TERMINAL macro specified an unopened data set.
15	A queue control block (QCB) was found that specified a relative line number of zero.
16	The option features specified in the UCB do not agree with those reflected in the device characteristics entry for this line.
17	There was not enough main storage to satisfy a GETMAIN request to build a TCAM control area in the subpool.
18	An invitation list is not specified for each line in the line group.
19	The invoking task is not an authorized program.

Programmer Response: See the documentation of message IED008I for the appropriate responses.

The contents of register 0 indicates the action to be taken:

Register 0 Contents in Hexadecimal	Response
01	Specify a larger region size on the JOB statement for the MCP.
02	Specify similar stations in the line group; reassemble and rerun the MCP.
03	Check the addresses specified in the line group DD statements to be sure that the line addresses are valid.
04	Check the addresses specified in the line group DD statements to be sure that the line addresses are valid.
05	Check the addresses specified in the line group DD statements to be sure that the line addresses are valid.
06	Check the addresses specified in the line group DD statements to be sure that the line addresses are valid.
07	Specify a larger region size on the JOB statement for the MCP.

- 08 Specify a larger region size on the JOB statement for the MCP.
- 09 Check the type of interface specified in the INVLST = operand of the DCB macro against the bit settings specified in the UCBs for each line in this lieng roup.
- 11 Specify DD statements with valid UNIT = operands.
- 12 Specify a larger buffer size for input on the BUFSIZE = and BUFIN = operands of the line group DCB macro, reassemble, and rerun the job.
- 13 If main-storage queuing is being used, verify that data sets were provided at INTRO execution time; if disk queuing is being used, ensure that the disk message queues data sets are opened before opening any line groups.
- 14 If main-storage queuing is being used, verify that data sets were provided at INTRO execution time; if disk queuing is being used, ensure that the disk message queues data sets are opened before opening any line group.
- 15 Each TERMINAL macro must specify an unframed decimal indger between 1 and 255 for the relative line number.
- 16 Verify that all DD statements specify the correct type of UCB for the lines being opened.
- 17 Specify a larger region size on the JOB statement for the MCP.
- 18 Either remove excessive DD cards or reassemble the MCP with an invitation list included for each line in the group.
- 19 Contact your systems programmer. Program must be authorized.

041 *Explanation:* The error occurred during execution of an OPEN macro instruction for a TCAM message queues data set.

System Action: The error code is inserted into register 0 if the user has coded an address in the EXLST = operand of the message queues DCB macro instruction. The exit routine may examine the code in register 0. If no user exit is specified, an indication of the error type may be found in the explanation of console message IED008I.

Valid error codes in register 0 indicate the nature of the error. The action taken depends on the return code provided by the user's asynchronous error routine. If no error routine is provided, TCAM terminates with this completion code.

Programmer Response: See the documentation of message IED008I for the appropriate responses.

043 *Explanation:* The error occurred during execution of an OPEN macro instruction for a TCAM application program data set. The contents of register 0 indicates the nature of the error:

Register 0 Contents in Hexadecimal	Explanation
01	An OPEN macro for a TCAM application program data set has been issued but there is no Message Control Program (MCP) active in the system.
02	The QNAME = parameter of the DD statement associated with an input or output DCB for an application program is not the name of a process entry defined in the terminal table.
03	Insufficient real storage was available in the MCP to build internal control blocks associated with the application program interface.
04	A process entry named by the QNAME = parameter of a DD statement associated with an application program is currently being used by another application program.
06	The application program attempted to open a secured queue. The system operator rejected the request.
07	An unauthorized application program has issued an OPEN.
08	PCB error. OPEN was issued for a TPROCESS entry with its PCB in use by another task.

System Action: If a user ABEND exit is provided in the EXLST = operand of the DCB macro for the data set, the

routine is given control. If it returns, or if no user ABEND exit is provided, the task terminates.

Programmer Response: Probable user error. No action is required if a user ABEND exit has been provided in the EXLST = operand of the DCB macro for the application program data set. The contents of register 0 indicates the action to be taken:

Register 0 Contents in Hexadecimal	Response
01	Make sure that an MCP is active before attempting to start an application program.
02	Recode the QNAME = parameter specifying the name of a valid process entry.
03	Specify a larger region size on the JOB statement for the MCP.
04	Recode the QNAME = parameter specifying another valid process entry.
06	Record the SECURE = YES operand associated with the queue, or instruct the system operator to allow the queue to be opened.
07	Link edit as authorized into an authorized library, or specify AUTHA = NO on the INTRO macro instruction.
08	Open all TPROCESS entries for the PCB in the same application program.

044 *Explanation:* The error occurred during execution of the FE Common Write (COMWRITE) task. The COMWRITE task has been terminated.

The contents of register 3 indicates the nature of the error:

Register 3 Contents in Hexadecimal	Explanation and Technical Information
01	Permanent I/O error on output device. Register 7 contains user ID; register 8 contains address of failing DECB.
02	STAE routine failed. Register 15 contains the return code.
03	User parameter list is incorrect, and output required was specified. Register 7 contains the address of the parameter list saved in COMWRITE. Register 11 contains the address of the error message.
05	OPEN failed on the output DCB.

Programmer Response: Response depends upon the contents of register 3:

Register 3	Response
01	Check the status of the recording medium. If it is valid, call IBM for hardware support.
02	Call IBM for hardware support.
03	Probable user error. Check the parameter list.
05	Probable user error. Missing DD statement. Include the DD statement and rerun the job.

045 *Explanation:* The error occurred during execution of a TCAM Message Control Program (MCP). The MCP terminates.

The contents of the low-order byte of reigster 15 indicates the nature of the error:

Register 15 Contents in Hexadecimal	Explanation
01	I/O has been requested on a non-reusable disk record that is beyond the capacity of the data set. The non-reusable disk data set cannot be wrapped.
02	Logical read error caused by the reusable disk receiving a heavy burst of new traffic, causing unsent messages to be overlaid before they can be copied to the alternate destination queue.
03	Logical read error while trying to fetch a message for transmission to a terminal.
04	The copy subtask needed to copy messages from one data set to another has not been loaded by the disk OPEN. A multiple-route or distribution list message has been enqueued to go to dissimilar message queue types. The copy subtask is needed to put the message

- on the queue. Caused by failure to open successfully a disk message queue DCB.
- 05 I/O has been requested on an unopened disk message queues data set.
- 06 FEATURE = (,NOTIMER) has been specified on the INTRO macro instruction, but a function requiring the system timer has been called.
- 07 A message longer than the reusable disk data set has been entered.
- 08 A disk read error occurred. It was a hardware error, not a logical read error.
- 09 Either insufficient space was allocated for the checkpoint data set, or a read error occurred when attempting to read records from the checkpoint data set during a restart.
- 0A Number of environmental checkpoint records that can be written is less than the number requested.

Programmer Response: Except for return code 08, probable user error. To determine the action for a specific reason code, follow these procedures based on the contents of the low-order byte of register 15:

Register 15	Response
01	Either specify a larger data set or request that close down occur at an earlier point.
02,03,07	Specify a larger data set or one that occupies more than one extent. For further suggested corrections, refer to the publication OS/VS TCAM Programmer's Guide, GC30-2034.
04,05	Before issuing the OPEN macro instructions for the lines, test for successful open of the message queues data set.
06	Specify FEATURE = (,TIMER); reassemble and rerun the MCP.
09	Message issued to operator just before abnormal termination describes the cause of failure, and message description provides response.
0A	Specify more space in which to write the records or decrease the number requested.

Problem Determination: For return code 08, see Table I, items 1, 2, 4, 5a, 18, 30. For all other return codes, see Table I, items 5a, 10, 29. Obtain a listing of the message queues data set.

046 **Explanation:** The TCAM MCP has been terminated but an application program data set is still open. The application program data set is scheduled to be terminated with a system completion code of 046.

System Action: The application program is terminated.

Programmer Response: Follow the programmer response for the system completion code provided with the termination of the MCP.

047 **Explanation:** An unauthorized program requested a restricted SVC.

The PSW indicates the last SVC issued. If SVC 102 (66) was the last issued by an unauthorized TCAM application program, the TCAM MCP program must specify on the INTRO macro instruction, AUTHA = NO. If SVC 102 was issued by other than a TCAM application program, the program must be authorized. If SVC 104 (68) was last issued, the program must be an authorized TCAM MCP.

Operator Response: Notify the installation manager or system programmer immediately. Hold all output relevant to the job.

Programmer Response: Probable user error. Run the job again.

056 **Explanation:** The error occurred during execution of the graphic attention service routine for the IBM 2250 Display Unit or the IBM 2260 Display Station.

The routine referred to an invalid unit control block (UCB). The routine obtained the reference to the unit control block through a data control block (DCB).

The user gives the routine the addresses of data control blocks through the poll list address in the first operand of the ANALYZ macro instruction or the address of a data control block through the list item address in the first operand of the GSERV macro instruction. The DCBDEBAD field in the data control block points to a data extent block (DEB), which in turn points to the unit control block.

The unit control block is used by the control program to obtain information about an input/output device; each unit control block is associated with one input/output device.

Programmer Response: Probable user error. Check the first operand in the ANALYZ or GSERV macro instruction to make sure that it specified the poll list address or list item address correctly. If the first operand was correct, make sure that the macro expansion and the data control block were not incorrectly modified by program errors. After correcting the error, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

057 **Explanation:** The error occurred during execution of the graphic attention service routine for the IBM 2250 Display Unit or the IBM 2260 Display Station.

The routine referred to a unit control block (UCB) that was associated with other than a graphic device. The routine obtained the reference to the unit control block through a data control block (DCB).

The user gives the routine the addresses of data control blocks through the poll list address in the first operand of the ANALYZ macro instruction or the address of one data control block through the list item address in the first operand of the GSERV macro instruction. The DCBDEBAD field in the data control block points to a data extent block (DEB), which in turn points to the unit control block.

The unit control block is used by the control program to obtain information about an input/output device; each unit control block is associated with one input/output device.

Programmer Response: Probable user error. Check the first operand in the ANALYZ or GSERV macro instruction to make sure that it specified the poll list address or list item address correctly. If the first operand was correct, make sure that the macro expansion and the data control block were not incorrectly modified by program errors. After correcting the error, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

061 **Explanation:** The error was detected during execution of a CLOSE macro instruction for a graphic data control block.

The graphic CLOSE executor issued a DAR macro instruction for a graphic attention control block (GACB) which was not specified (via a \$PAR macro instruction) by the closing task.

System Action: Abnormal termination occurred for the task that issued the SPAR macro instruction for the graphic attention control block.

Programmer Response: Probable user error. Issue a DAR macro instruction for the graphic attention control block in the task which issued the SPAR macro instruction before the closing task issues the CLOSE macro instruction. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

062 **Explanation:** The error occurred during execution of a routine of the graphic subroutine package (GSP) for FORTRAN IV, COBOL, and PL/I.

A condition was encountered that produced a return code equal to or greater than the absolute value specified by the programmer as the 'null' argument in the call to the INGPS

subroutine. The GSPARRAY field in the GSPCB identifies the return code produced, register 2 contains the address of the status table entry last invoked, and register 3 contains the address of the GSPARRAY field.

Programmer Response: Determine the condition that caused the job step to be abnormally terminated and change the program accordingly. Then, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

063 *Explanation:* During execution of a graphic program, the 2250 operator pressed the CANCEL key on the alphanumeric keyboard of the display unit. The 2250 operator selected either the TERMINATE option or the DUMP option on the termination option display, and the problem program was terminated either with or without a dump.

Programmer Response: Determine from the 2250 operator the condition that caused him to terminate the program, and respond accordingly.

071 *Explanation:* The operator pressed the RESTART key to activate the system's recovery and termination process. The program running at the time the operator pressed the RESTART button was sent through ABEND processing because the operator determined it was in a noncancelable loop or wait state.

Programmer Response: Correct the looping and resubmit the job.

072 *Explanation:* The task has been terminated because it can run only on the CPU which has been placed logically offline.

Programmer Response: Resubmit the job when its CPU affinity requirements can be met.

073 *Explanation:* Invalid request. If the SETLOCK request was OBTAIN, one of the following occurred:

- Locking hierarchy violated.
- Another lock of the same type is already held.
- CMS lock requested but LOCAL lock is not held.
- Local lock unconditionally requested by a non-TCB/RB or non-SRB mode caller.

If the request was RELEASE one of the following occurred:

- Local lock was specified while CMS lock was still held.
- Multiple release involving locks not held.

Programmer Response: Probable user error. Make sure source is correct.

Problem Determination: Table I, items 3, 4, 13, 29.

074 *Explanation:* An invalid lockword address was specified or the SETLOCK function was unable to complete. One of the following was detected:

- Lockword address is not on a fullword boundary.
- Page fault encountered using the specified lockword address.
- A machine check occurred in a user-supplied lockword.

Programmer Response: In the first two cases, probable user error. Make sure the source is correct. For the last case, probable hardware error. The function may be retried. If the problem recurs, determine if the function is necessary for continuing system operation, and if so, do the following:

- Place system in wait state with an assigned wait state code.
- If function is not a critical resource, continue system operation without the resource.

Problem Determination: Table I, items 3, 4, 13, 18, 29 or 30.

076 *Explanation:* An error occurred while attempting to create a new address space, or an unexpected abnormal termination occurred in address space create or address space initialization.

System Action: Address space termination deletes the partially created address space. Message IEA890I is issued to identify which command was aborted as a result of the failure.

Programmer Response: Notify the system programmer of this ABEND.

Problem Determination: Table I, items 2, 7, 29.

077 *Explanation:* A request to start or stop MONITOR JOB NAMES, STATUS, or SESSIONS was made with an invalid console id or ASID for a terminal user.

System Action: The MONITOR function is not started or stopped.

Operator Response: Reissue the MONITOR or STOPMN command.

Problem Determination: Table I, items 2, 29.

078 *Explanation:* RCT processing has received an unacceptable return code from an invoked routine and cannot continue processing.

System Action: RCT recovery receives control and does the following:

- Records the error in SYS1.LOGREC.
- Performs resource clean-up.
- Requests a SYS1.DUMP of the address space.
- Requests address space termination.

Programmer Response: None.

Problem Determination: Save the module/function information in the record written to SYS1.LOGREC. Table I, items 16, 29.

079 *Explanation:* RCT attention exit processing has encountered an unacceptable return code from an invoked routine and cannot continue processing.

System Action: RCT recovery code receives control and takes the following action:

- Records the error in SYS1.LOGREC.
- Performs resource clean-up.
- Issues an error message to the terminal indicating that the attention request was ignored or requests a SYS1.DUMP of the address space.

Programmer Response: If an error message is issued to the terminal, either continue processing without regenerating the attention interrupt, or regenerate an attention interrupt to either the same attention level or a different level. If a SYS1.DUMP was taken, no response is possible.

Problem Determination: Save the module/function information recorded on SYS1.LOGREC. Table I, items 16, 29.

07A *Explanation:* RCT recovery processing has detected that it was invoked as the result of an unrecoverable error. To avoid an address space interlock, RCT issued CALLRTM to terminate the address space. The conditions that will cause CALLRTM are:

- An SIRB failure.
- A serious error during swap-out processing.

System Action: The address space-related resources are not cleaned up and the address space is abnormally terminated. A record may or may not be written to SYS1.LOGREC.

Operator Response: None.

Problem Determination: Table I, items 16, 18, 29.

07B Explanation: The error occurred during the execution of a remote immediate, remote pending or direct signal inter-processor communication service request. One of the above routines was supplied with an invalid PCCA address.

System Action: The requestor is terminated with a dump.

Programmer Response: Check for program errors that could have improperly loaded a PCCA address.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

07C Explanation: Supervisor control recovery has detected an error which requires that the current task be terminated or that the current address space be terminated.

System Action: Either the current task or the current address space is terminated.

Operator Response: Notify the system programmer of this ABEND code.

Problem Determination: Table I, items 2, 13, 29.

07D Explanation: The error occurred during the execution of a SETFRR macro instruction to add an FRR to one of the FRR recovery stacks. The particular recovery stack, against which the SETFRR was issued, could not hold any more FRRs since all available slots were filled.

System Action: The task associated with this stack overflow condition is abnormally terminated provided recovery (FRRs, ESTAEs, etc.) for the task is unsuccessful.

Programmer Response: Probable error in non-IBM, key 0 code. Consult your system programmer to determine if any non-IBM, key 0 programs are contained in the control system and used by the problem program. Such code is either adding FRRs without deleting them, or is in a SETFRR loop.

Problem Determination: Table I, items 5a, 13, 15, 18, 23, 29. Table II, format I: TRACE = SYS,DSP.

07E Explanation: An invalid parameter was received. IEEVDEV cannot continue processing for one of the following reasons:

- The UCB address did not point to the common segment of the UCB.
- Unrecoverable error occurred during IEEVDEV processing.
- An invalid CPU address was passed for function code 01 and 02.

System Action: One of the following reason codes will be found in register 15, indicating the cause of the error:

Reason Code	Meaning
04	Invalid UCB address.
08	Unrecoverable error during IEEVDEV processing.
12	Invalid function code.
16	Invalid CPU address.
20	Invalid return code was received from IECVIOPM.

Programmer Response: Verify the UCB address of UCB common segment, and make sure that the CPU address represents a valid physical CPU.

Note: IEEVDEV is called only by system functions. An abnormal termination will activate the calling functions recovery routines and the caller will be the one to decide if the system operator should be notified.

081 Explanation: GETMAIN and IEAVITAS have passed an incorrect virtual address to IEAVSQA. The error is a user error to RSM where the user is a system function--GETMAIN or IEAVITAS (RSM); therefore, the error is a system error to the customer installation.

System Action: The request for an LSQA or SQA real storage frame is denied.

Programmer Response: None.

Problem Determination: Table I, items 1, 5a, 16, 29.

082 Explanation: An error was encountered while attempting to release SALLOC lock (return code 8 from SETLOCK--lockword ID does not match caller's ID).

System Action: The FRR is entered to record the abnormal situation, and the caller is terminated.

Programmer Response: Probable system error. None.

Problem Determination: Table I, items 1, 5a, 16, 29.

083 Explanation: Macro ILRGMA has found no storage cell available for one of the following:

- A workarea.
- An ASM control element(ACE).
- An ASM I/O element (AIE).
- A PART I/O element (IOE).
- A task-mode element (TME).
- A service request block (SRB).

System Action: An ASM FRR or ESTAE/ESTAI record is written to SYS1.LOGREC and processing continues.

Programmer Response: None.

084 Explanation: Macro ILRGMA encountered an error while attempting to free a storage cell used for a workarea, an ACE, an AIE, an IOE, a TME, or an SRB.

System Action: An ASM FRR or ESTAE/ESTAI exit record is written to SYS1.LOGREC and processing continues.

Programmer Response: None.

085 Explanation: Virtual storage has been found unavailable while attempting to initialize or expand an ASPCT.

System Action: An ASM FRR or ESTAE/ESTAI exit record is written to SYS1.LOGREC and processing continues.

Programmer Response: None.

086 Explanation: While attempting to retrieve and reconstruct a saved ASPCT from SYS1.STGINDEX, or while attempting to save an ASPCT to SYS1.STGINDEX, ILRACT01 received an error return from one of the following:

- A VSAM record-management macro instruction.
- Routine ILRAPR00, indicating an invalid ASST index while trying to reconnect two retrieved pages of the ASPCT.

System Action: An ASM ESTAI exit record is written to SYS1.LOGREC and processing continues.

Programmer Response: None.

087 Explanation: Routine ILRAFS00 received an error return from FREEMAIN while attempting to free the virtual storage containing an ASPCT.

System Action: An ASM ESTAI exit record is written to SYS1.LOGREC and processing continues.

Programmer Response: None.

088 Explanation: The PART Monitor (ILRPTM00) has found no valid PART entries (no usable paging data sets).

System Action: An ASM FRR record is written to SYS1.LOGREC. Any jobs or steps needing paging are abnormally terminated and processing continues.

Programmer Response: None.

089 Explanation: The task-mode controller received an error return while attempting to ATTACH a SAVE, RELEASE-LG, or ACTIVATE subtask.

System Action: An ASM ESTAE exit record is written to SYS1.LOGREC and processing continues.

Programmer Response: None.

090 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found that a device other than a communications device was allocated to the data control block (DCB) being opened; that is, the device class code in the unit control block (UCB) for the device allocated to the data control block was not equal to hexadecimal 40.

Programmer Response: Either the UNIT parameter of the DD statement for the communications device is incorrect or the unit control block generated during system generation is invalid. Check for improper specification of the UNIT parameter or the IODEVICE macro instruction used in generating the system. Also, check for program errors that could have improperly modified control information. After correcting the error, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

091 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found an invalid or unsupported type of transmission control unit specified in the unit control block (UCB) for the device allocated to the data control block (DCB) being opened.

Programmer Response: Check for improper specification of the IODEVICE macro instruction used in generating the system. Also, check for program errors that could have improperly modified control information. After correcting the error, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

092 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found an invalid or unsupported type of terminal control or terminal adapter specified in the unit control block (UCB) for the device allocated to the data control block (DCB) being opened.

Programmer Response: Check for improper specification of the ADAPTER parameter in the IODEVICE macro instruction used in generating the system. Also, check for program errors that could have improperly modified control information. Correct the error, and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

093 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found an invalid or unsupported type of terminal specified in the unit control block (UCB) for the device allocated to the data control block (DCB) being opened.

Programmer Response: Check for improper specification of the UNIT parameter in the IODEVICE macro instruction used in generating the system. Also, check for program errors that could have improperly modified control information. Correct the error, and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

094 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found an invalid or unsupported optional feature or mode of operation specified in the unit control block (UCB) for the device allocated to the data control block (DCB) being opened.

Programmer Response: Check for improper specification of the FEATURE parameter in the IODEVICE macro instruction used in generating the system. Also, check for program errors that could have improperly modified control information. Correct the error, and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

095 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found that the lines allocated to the line group did not have identical terminal types and/or optional features.

Programmer Response: Determine which line group contains different terminals and redefine its lines through DD statements or a new system generation.

Problem Determination: Table I, items 1, 3, 5a, 29.

096 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

An OPEN routine found that dynamic buffer allocation had been specified in the DCBBFTEK field of the data control block (DCB). However, the OPEN routine could not dynamically allocate buffers because the data control block specified neither the address of a buffer pool control block (in the DCBBUFCB field) nor the number and length of the buffers (in the DCBBUFNO and DCBBUFL fields).

Programmer Response: Correct the error by (1) providing a buffer pool and specifying the address of its control block in the DCBBUFCB field, (2) specifying the number and length of the buffers in the DCBBUFNO and DCBBUFL fields, or (3) handling buffering in the program and deleting the BFTEK = D operand in the DCB macro instruction or DCB parameter of the DD statement. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

097 Explanation: The error occurred during execution of a BTAM OPEN macro instruction.

The open routine required an additional entry in the device I/O directory; however, the directory was already full. Since the last system start, the maximum number of device types has already been opened. Normally, the maximum number of device types is 30.

Programmer Response: Additional space in the device I/O directory can be provided by changing one statement in the read/write routine. The statement following the one labeled IOD must be changed. The duplication factor must be increased to correspond to the number of different device types being used. The new read/write routine must be reassembled and link edited to SVCLIB.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

098 Explanation: The error occurred during execution of a BTAM OPEN macro instruction. Dual Communication Interface B or Dual Code Feature B was specified. However, the transmission control unit was not a 2701, the transmission control unit was not the Dual Communication Interface, or the Dual Code Feature was not specified in the unit control block (UCB).

Programmer Response: Probable user error. Correct program errors, and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

099 Explanation: The error occurred during execution of a BTAM OPEN macro instruction. An OPEN routine found that dynamic buffering was being initiated while the BTAM application was running V = V. BTAM dynamic

buffering is not supported for V = V in OS/VS2, Release 2.

Programmer Response: Add the ADDRSPC = REAL operand to the job statement and initiate the BTAM application again (V = R).

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

0A8 Explanation: The error occurred during execution of a user's application program and was detected by VTAM. The contents of the two low-order bytes of register 15 indicate the cause of the error:

Register 15 Contents in Hexadecimal	Explanation
2101	A VTAM validity check of the user's request parameter list (RPL) failed because the RPL does not have the same protection key as the application program's TCB.
7001	The user's request parameter list (RPL) control block, or event control block (ECB) is invalid.

System Action: The task abnormally terminates.

Programmer Response: Probable user error. Verify that the RPL and ECB pointers are correct and execute the job step again.

Problem Determination: Table I, items 1, 2, 3, 5a, 13, 15, 16, 27, 29.

0A9 Explanation: The error occurred during execution of a VTAM module. The contents of the two low-order bytes of register 15 indicate the cause of the error:

Register 15 Contents in Hexadecimal	Explanation
3111	A VTAM module finished processing before it released a lock.
3141	A VTAM destination vector table (DVT) entry is invalid for the defined attachment.
7002	A VTAM request for storage failed.
7003	A VTAM request to release storage failed because the storage had already been released.
7004	VTAM could not obtain a local memory lock.
7141	Control cannot be passed to the proper VTAM module. Either a VTAM destination vector table entry is invalid for the defined attachment or VTAM storage has been altered.

System Action: The task that initiated the VTAM request abnormally terminates.

Programmer Response: None.

Problem Determination: Table I, items 1, 2, 4, 5a, 13, 16, 18, 29.

0AA Explanation: An abend condition occurred during execution of VTAM. VTAM's Functional Recover Routines (FRR's) were unable to associate the failure with any particular TCB in the address space.

System Action: All the tasks in the address space are abnormally terminated.

Programmer Response: None.

Problem Determination: Table I, items 1, 2, 5a, 13, 16, 27, 29.

0B0 Explanation: An uncorrectable error was detected by the SWA manager. The exact nature of the error is indicated by the code in register 15:

04	Invalid function requested.
08	Invalid SVA (does not point to the beginning of a SWA prefix or the SWA prefix has been destroyed).
0C	Attempting to read a block not yet written.
10	Invalid length (0 or negative for assign locate or attempting to read or write a record, which is not 176 bytes, in move mode).

- | | |
|----|---|
| 14 | Invalid count field (0 for read, write, assign or 00 for write and assign). |
| 18 | QMNGRIO macro was issued with both or neither of the read and write bits set. |
| 1C | Invalid ID (the caller attempted to write a block for the first time and has either passed a non-existing ID or has failed to pass one and the block does not have an embedded ID). |
| 20 | Invalid block pointer. (Write locate is attempting to write and is passing a block pointer which is not valid for the SVA requested.) |

System Action: The task is terminated.

Operator Response: Notify the system programmer of this code.

Problem Determination: Table I, items 3, 4, 16, 29.

0B1 Explanation: The error occurred when a master subsystem module detected invalid parameters being passed to it from another module, while starting either the master scheduler or a subsystem.

System Action: The START process is ended.

Programmer Response: None.

Problem Determination: Table I, items 2, 16, 29.

0B2 Explanation: The error occurred when the Master Subsystem JCL-to-JCLs conversion routine detected an invalid card in the MSTRJCL data set. The MSTRJCL could not be converted and the Master Scheduler was not started.

System Action: The Master Scheduler is not started. The IPL is terminated at this point.

Programmer Response: Probable user error. If the MSTRJCL data set in the LINKLIB has been updated manually since the system was generated, check it for a card without a // in columns 1 and 2.

Also check to insure that the MSTRJCL is delineated by a /* or a // (null) card.

Problem Determination: Table I, items 2, 16, 29.

0B3 Explanation: The error occurred when a caller of the Master Subsystem incore access method attempted an invalid, or not serviceable access request via the RPL/ACB interface.

System Action: The task using the access method is abnormally terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 16, 29.

0B4 Explanation: The Master Subsystem could not make use of the SYS1.PROCLIB data set defined by the IEFPSI card in the MSTRJCL, for one of the following reasons:

- The Master Subsystem was unable to OPEN the PROCLIB data set.
- The blocksize of the opened SYS1.PROCLIB data set was not a multiple of 80.

System Action: Without an open SYS1.PROCLIB DCB, the Converter cannot be operated; therefore, the subsystem requested is not started.

Programmer Response: Probable user error. Check for a valid data set name on the IEFPSI card in the MSTRJCL data set. Also, check for a valid blocksize either on the IEFPSI card or in the data set's format DSCB in the VTOC.

Problem Determination: Table I, items 2, 16, 29.

OB5 Explanation: The Master Subsystem was unable to ATTACH the Converter.

System Action: ATTACH passed a nonzero code back to the master subsystem in register 15. The Subsystem requested is not started.

Programmer Response: None.

Problem Determination: Table I, items 2, 16, 29.

OB7 Explanation: An unexpected error occurred while processing a reconfiguration command.

System Action: The command frees all related resources and may be reinvoked. A software error is written to the SYS1.LOGREC data set.

Operator Response: Retry the command.

Problem Determination: Table I, items 18, 29.

OB8 Explanation: The error occurred when the started task control detected one of the following situations while processing a START, MOUNT, or LOGON command. The reason code is in register 15 at the time the ABEND is issued:

Code	Meaning
4	The command code in the CSCB is invalid; not a START, MOUNT, or LOGON command code.
8	A TIOT manager failure occurred while attempting to obtain storage for a START, MOUNT, or LOGON TIOT.
12	An OPEN failure occurred while attempting to write START, MOUNT, or LOGON JCL to the STCINRDR or TSOINRDR internal reader data set.

System Action: If the command is START or MOUNT, message IEE824I is issued; the START, MOUNT, or LOGON task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 7c, 16, 18, 29.

OB9 Explanation: The error occurred when the started task control received an invalid return code from the master subsystem when the request was issued to determine if a subsystem was being started.

System Action: If the command is START or MOUNT, message IEE824I is issued; the START, MOUNT, or LOGON task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 7c, 16, 18, 29.

OBA Explanation: The error occurred when the started task control or the initiator received an invalid return code from the subsystem interface when a subsystem request was issued.

System Action: In started task control, if the command is START or MOUNT, message IEE824I is issued; the START, MOUNT, or LOGON task is terminated. In the initiator, message IEF187I is issued and the job is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 7c, 16, 18, 29.

OB8 Explanation: The initiator was unable to ATTACH the job step task, started task, or LOGON task.

System Action: The initiator is abnormally terminated causing failure of the job, START or LOGON. The return code from ATTACH is found in register 15.

Programmer Response: None.

Problem Determination: Table I, items 3, 4, 16, 29.

OCx Explanation: A program interruption occurred and no routine had been specified to handle this type of interruption. In case of these errors, instruction execution can be terminated in one of several ways. Refer to the Principles of Operation publication with the instruction involved to determine the manner in which that instruction stops execution for the given error condition.

The last digit of this completion code is a hexadecimal number that indicates the cause of the program interruption:

Last Digit	Program Interruption Cause
1	Operation exception: an operation code is not assigned or the assigned operation is not available on the particular model. (The operation is suppressed. The instruction-length code is 1, 2, or 3.)
2	Privileged-operation exception: a privileged operation is encountered in the problem state. (The operation is suppressed. The instruction-length code is 1 or 2.)
3	Execute exception: the subject instruction of EXECUTE is another EXECUTE. (The operation is suppressed. The instruction-length code is 2.)
4	A virtual address could not be translated into a real address because of one of the following: • The key of an instruction halfword or an operand in storage does not match the protection key in the PSW (interrupt code 4). • The virtual segment or page was never allocated (interrupt code 10 or 11). • The page was paged out and the routine requesting the page was disabled for I/O interrupts (interrupt code 11). (The operation is suppressed on a store violation, except in the case of STORE MULTIPLE, READ DIRECT, TEST AND SET, and variable-length operations, which are terminated. Except for EXECUTE, which is suppressed, the operation is terminated on a fetch violation. The instruction-length code is 0, 2, or 3.)
5	Addressing exception: an address specifies any part of data, an instruction, or a control word outside the available real storage for the particular installation. Issued by program FLIH the instruction-length is 1, 2 or 3.
6	Specification exception: one of the following occurred: • A data, instruction, or control-word address does not specify an integral boundary for the unit of information. • The R_i field of an instruction specifies an odd register address for a pair of general registers that contains a 64-bit operand. • A floating-point register address other than 0, 2, 4, or 6 is specified. • The multiplier or divisor in decimal arithmetic exceeds 15 digits and sign. • The first operand field is shorter than or equal to the second operand field in decimal multiplication or division. • The block address specified in SET STORAGE KEY or INSERT STORAGE KEY has the four low-order bits not all zero. • A PSW with a nonzero protection key is encountered when protection is not installed. (The operation is suppressed. The instruction-length code is 1, 2, or 3.)
7	Data exception: one of the following occurred: • The sign or digit codes of operands in decimal arithmetic or editing operations or in CONVERT TO BINARY are incorrect. • Fields in decimal arithmetic overlap incorrectly. • The decimal multiplicand has too many high-order significant digits. (The operation is terminated or suppressed. The instruction-length code is 2 or 3.)
8	Fixed-point-overflow exception: a high-order carry occurs or high-order significant bits are lost in fixed-point add, subtract, shift, or sign-control operations. (The operation is completed by ignoring the information placed outside the register. The interruption may be masked by PSW bit 36. The instruction-length code is 1 or 2.)
9	Fixed-point-divide exception: a quotient exceeds the register size in fixed-point division, including division by zero, or the result of CONVERT TO BINARY exceeds 31 bits. (Division is suppressed. Conversion is completed by ignoring the information placed outside the register. The instruction-length code is 1 or 2.)

- A Decimal-overflow exception: the destination field is too small to contain the result field in a decimal operation.
(The operation is completed by ignoring the overflow information. The interruption may be masked by PSW bit 37. Issued by program FLIH the instruction-length is 2 or 3.)
- B Decimal-divide exception: a quotient exceeds the specified data field size.
(The operation is suppressed. Issued by program FLIH the instruction-length code is 2 or 3.)
- C Exponent-overflow exception: the result characteristic in floating-point addition, subtraction, multiplication, or division exceeds 127 and the result fraction is not zero.
(The operation is completed. The fraction is normalized, and the sign and fraction of the result remain correct. The result characteristic is made 128 less than the correct characteristic. The instruction-length code is 1 or 2.)
- D Exponent-underflow exception: the result characteristic in floating-point addition, subtraction, multiplication, halving, or division is less than zero and the result fraction is not zero.
(The operation is completed. The setting of the exponent-underflow mask (PSW bit 38) affects the results of the operation. When the mask bit is zero, the sign, characteristic, and fraction are set to zero, making the result a true zero. When the mask bit is one, the fraction is normalized, the characteristic is made 128 larger than the correct characteristic, and the sign and fraction remain correct. The instruction-length code is 1 or 2.)
- E Significance exception: the result of a floating-point addition or subtraction has an all-zero fraction.
(The operation is completed. The interruption may be masked by PSW bit 39. The manner in which the operation is completed is determined by the mask bit. The instruction-length code is 1 or 2.)
- F Floating-point-divide exception: division by a floating-point number with zero fraction is attempted.
(The operation is suppressed. The instruction-length code is 1 or 2.)

System Action: The task is terminated if no recovery routine was specified to handle the interrupt. Refer to the Principles of Operation publication under the instruction involved to determine the hardware action.

Programmer Response: Probable user error. Determine if the problem program or control program was in error. If the problem program contained an error, correct it and execute the job step again.

Problem Determination: Table I, items 5a, 16, 23, 29.

ODx Explanation: A program interruption occurred and no routine had been specified to handle this type of interruption. In case of these errors, instruction execution can be terminated in one of several ways. Refer to the Principles of Operation publication with the instruction involved to determine the manner in which that instruction stops execution for the given error condition.

The last digit of this completion code plus X'10', is a hexadecimal number that indicates the cause of the program interruption:

- | Last Digit | Program Interruption Cause |
|------------|--|
| 2 | A program check was detected; an interruption code of 18 (translation specification error) has occurred. There is invalid data in either control registers zero or one, or a segment or page table. The error is a result of a hardware error or a program running in key zero has caused data damage. |

System Action: An attempt is made to terminate the task suffering this error. If task termination cannot be processed because of the translation problems, an attempt is made to terminate the address space. If this fails, the system is placed in a disabled wait state (code X'040').

Programmer Response: Probable user error. Correct the error and rerun the program.

- 3 A program check, interruption code 19 (special operation error) has occurred. A privileged program issued a set system mask.

System Action: The task is terminated.

Programmer Response: Remove the set system mask instruction. This instruction is not valid in OS/VS2, Release 2. Refer to the OS/VS2 Planning Guide for Release 2, Order No. GC28-0667-1.

Problem Determination: Table I, item 29.

OE1 Explanation: An error was encountered while processing the first EXCP against a VIO data set. Register 15 contains one of the following reason codes:

- X'05B' The LGCB (IDAVBPL) chain is invalid. The ASIDs in the LGCB and the ASCB do not match.
- X'1xx' Unable to fix or free the page containing the parameter list (VCB) for RSM.

Last Two Digits

- 04 Operation abnormally terminated. Operation incomplete because of invalid address in virtual subarea list; ECB posted complete.
- 10 Operation abnormally terminated. Virtual subarea list entry or ECB address invalid; no ECB posted.
- X'2xx' RSM was unable to 'assign null' the virtual track buffer or the DSPCT map.

Last Two Digits

- 08 Write (move-out) error. The page identified by the VCBVSA field is fixed in real storage and cannot be written to the data set in auxiliary storage.
- 10 The page identified by the VCBVSA field will not be written to the data set because it was not brought into real storage by the prior read request or because data in the page has not been modified.
- 20 The page identified by the VCBVSA field belongs to an LPID other than the LPID in the VCBLPID field.
- 40 Invalid virtual storage address. A GETMAIN macro instruction was not issued for the page identified by the VCBVSA field.
- 80 Assign error. The page identified by the VCBVSA field was previously read and was not disconnected by a move-out or move-out-null request before the current read (assign) operation.

X'3xx' ASM was unable to ASSIGN a logical group for this VIO data set. Either ASM was unable to obtain storage to process the request or ASM ran out of paging slots to create VIO data sets. If the console sheet from the primary console shows warning messages that indicate a shortage of paging space or heavy VIO activity, then it may be possible to re-IPL after increasing the constant ILRSLOTV as described in the OS/VS2 System Programming Library: Initialization and Tuning Guide, GC28-0681

Last Two Digits

- 1C Not enough slots.
Maximum number (1600) of LGNs exceeded.
unable to obtain storage to process request.

System Action: The input parm list (IDAVOP1), the DSPCT header (IDAVBPH) and SWA are dumped to the SYS1.DUMP data set. ASCB and the LGCB (IDAVBPL) chain are also dumped if the reason code was X'05B'.

Programmer Response: System error. Rerun the job.

Problem Determination: Table I, items 1, 2, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE2 Explanation: The error was detected while processing the first EXCP for the VIO data set after a restart. Register 15 contains one of the following reason codes:

- X'05B' The LGCB (IDAVBPL) chain is invalid. The ASIDs in the LGCB and the ASCB do not match.
- X'1xx' Unable to fix or free the page containing the parameter list (VCB) for RSM. Refer to code OE1 for an explanation of xx.
- X'2xx' RSM was unable to 'assign null' the virtual track buffer or the DSPCT map. Refer to code OE1 for an explanation of xx.

System Action: The input parm list (IDAVOP1), DSPCT header (IDAVBPH) and SWA are dumped to the SYS1.DUMP data set. If the reason code is X'05B', ASCB and the LGCB (IDAVBPL) are also dumped.

Programmer Response: System error. Rerun the job.

Problem Determination: 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE3 Explanation: The error occurred while processing a VIO data set. Register 15 contains one of the following reason codes:

X'004' An invalid RBA was passed to VBP. Probable causes of error code are (1) DEB with extent descriptions which do not fall within the allocated extents as described in the virtual data set control block (VDSCB) (2) EXCP was issued to read the format 1 DSCB on the volume.

X'1xx' Unable to fix or free the page containing the parameter list (VCB) for RSM. Refer to code OE1 for an explanation of xx.

X'2xx' RSM was unable to 'assign' or 'move out' pages in the virtual track buffer. Refer to code OE1 for an explanation of xx.

System Action: The input parameter list (IDABUFC), the DSPCT header (IDAVBPH) and SWA are dumped to the SYS1.DUMP data set.

Programmer Response: System error. Rerun the job.

Problem Determination: Table I, items 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE4 Explanation: The error occurred while trying to scratch a VIO data set. Register 15 contains one of the following reason codes:

X'008' The ASIDs in the LGCB and ASCB do not match indicating an error in the LGCB chain.

X'3xx' ASM was unable to 'RELEASE' the logical group successfully for this data set.

Last Two Digits

04 invalid LGN.

1C unable to obtain storage to process request.

28 invalid identifier type when an LGN was given, but 'S' type symbol is required.

System Action: The ASCB and LGCB chain DSPCT header, and SWA are dumped on SYS1.DUMP data set.

Programmer Response: System error. Rerun the job.

Problem Determination: Table I, items 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE5 Explanation: Unable to disconnect the virtual track buffer from the VIO data set. Register 15 contains one of the following reason codes:

X'1xx' Unable to fix or free the page containing the parameter list (VCB) for RSM. Refer to code OE1 for an explanation of xx.

X'2xx' RSM was unable to 'MOVE OUT' pages in the virtual track buffer. Refer to code OE1 for an explanation of xx.

System Action: The DSPCT header and SWA are dumped to the SYS1.DUMP data set.

Programmer Response: System error. Rerun the job.

Problem Determination: Table I, items 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE6 Explanation: Unable to process against a data set that has already been scratched.

System Action: The VDSCB (IDVDSCB) is dumped to the SYS1.DUMP data set.

Programmer Response: Probable user error. Do not access a scratched data set.

Problem Determination: Table I, items 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE7 Explanation: The error occurred while journaling the DSPCT header (IDAVBPH) at step termination or at checkpoint. Register 15 contains one of the following reason codes:

X'008' Scheduler module IEFXB500 returned an unsuccessful completion code for a request to write to the job journal.

X'05B' The LGCB (IDAVBPL) chain is invalid. The ASIDs of the LGCB (in the LGCB chain) and the ASCB did not match.

X'1xx' Unable to fix or free the page containing the parameter list (VCB) for RSM. Refer to code OE1 for explanation of xx.

X'2xx' RSM was unable to 'ASSIGN' or 'MOVE OUT' pages in the virtual track buffer. Refer to code OE1 for explanation of xx.

X'3xx' ASM was unable to 'SAVE' the logical group for this data set.

Last Two Digits

04 invalid LGN.

1C unable to obtain storage to process request.

2C task mode controller not operating.

X'408' Unable to obtain the local lock. The lockword id does not match the caller's id.

System Action: The DSPCT header (IDAVBPH) and SWA are dumped on the SYS1.DUMP data set.

Programmer Response: System error. Rerun the job.

Problem Determination: Table I, items 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OE8 Explanation: The error occurred while processing the VIO data sets for the job after an abnormal system or job step task failure. Register 15 contains one of the following reason codes:

X'004' Unable to free the LGCB.

X'051' The ASID in the LGCB chain and the ASCB do not match.

X'3xx' ASM was unable to release the logical group for this data set. See code OE4 for an explanation of xx.

X'408' Unable to obtain the local lock. The lockword id does not match the caller's id.

System Action: The input parm list (RMPL), the ASCB and the LGCB (IDAVBPL) chain are dumped to the SYS1.DUMP data set.

Programmer Response: System Error. Rerun the job.

Problem Determination: Table I, items 1, 4, 5a, 7d, 9b with MEMBER = IDDWI, 18, 29, 33.

OF3 Explanation: The control program was able to initiate termination of the current task after a machine-check interruption.

System Action: The system initiates terminated of the current task.

Programmer Response: Probable hardware error. If the data on external storage devices is still valid, execute the job step again.

Problem Determination: Table I, items 2, 18, 30.

OF6 Explanation: The error occurred during the processing of the SETEVENT service, acting on behalf of one of the following system components:

GTF

The contents of register 15 indicate the nature of the error:

Reg. 15

in Hex	Meaning
00	The caller of the SETEVENT service was not authorized via APF, protect key 0-7, or supervisor state.
04	The parameter list passed to SETEVENT was invalid.
08	An invalid monitor call queue element (MCQE) address was passed to SETEVENT.
0C	The monitor call queue element (MCQE) at the address passed to SETEVENT is invalid for the function requested.

System Action: The caller of SETEVENT is terminated with the above completion code.

Programmer Response: Make sure that the caller of SETEVENT has the proper authorization for its use: protect key 0-7, supervisor state, or authorized via APF. If it does not, correct this condition and restart the failing component.

Problem Determination: Table I, items 1, 2, 4, 5a, 7d, 13, 16, 29.

OF8 Explanation: The issuer of an SVC was either in SRB mode, held a lock or was disabled.

Programmer Response: Probable user error in an SVC routine or SRB routine attempting to issue an SVC.

Problem Determination: Table I, item 29.

OF9 Explanation: LSQA has been exhausted such that SVRB space is not available to honor an SVC request in the address space.

Programmer Response: Probable user error, but not necessarily in the program that was abnormally terminated. Check the program for any possible SVC loops and rerun the program.

Problem Determination: Table I, item 29.

OFA Explanation: Both LSQA and SQA have been exhausted such that SVRB space is not available to honor an SVC request in the address space while ABEND is in process.

Programmer Response: Probable system error. None.

Problem Determination: Table I, items 16, 29.

OFB Explanation: A translation exception has occurred. Control register 0 was detected as having invalid contents.

OFc Explanation: A translation exception error occurred during a TRAS (transfer address space) function. During the TRAS function, control register 1 was updated with an address space segment table origin address (ASCBSTOR) without a corresponding update of PSAAOLD. Probably, an invalid ASID or ASCB address was used to locate the ASCBSTOR value.

Programmer Response: Probable system error. Check register 1 at time of error to determine how the ASCBSTOR value was located.

Problem Determination: Table I, items 16, 18, 29.

Programmer Response: If control register 0 is being manipulated, check the contents being placed in this register. If not manipulating control register 0, then it is a system problem.

Problem Determination: Table I, items 16, 29.

100 Explanation: The control program detected one of the following:

- A device to be used was not operational.
- An illegal use of a pseudo device was made. A pseudo device previously allocated has been reallocated.

Programmer Response: If the device was taken offline, the device should be varied online or another device used. Then the job step should be executed again.

If a device was specified that was not operational, an unallocated device should be specified in the UNIT parameter of the DD statement describing the data set to be processed. Run the job again.

If a pseudo device was illegally used, an unallocated device should be specified in the UNIT parameter of the DD statement and the job run again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

101 Explanation: The error occurred during execution of a WAIT macro instruction.

The problem program specified more events than there were event control blocks (ECBs).

Programmer Response: Probable user error. Change the number of events specified so that it is less than or equal to the number of event control blocks. If the specification was correct, make sure it was not incorrectly modified. Correct the error, and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 29.

102 Explanation: The error occurred during execution of a POST macro instruction.

The control program found an invalid event control block (ECB) address.

Programmer Response: Probable user error. Make sure that the event control block address specified is a valid virtual storage address and that it was not incorrectly modified. For a system with the storage protection feature, make sure that the event control block address is in the same protection area as the task waiting for the block to be posted and the task attempting to post the block. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

104 Explanation: The error occurred during the execution of a GETMAIN macro instruction for an authorized program.

The program requested more bytes of virtual storage from a system queue area than were available in real storage.

System Action: The task is terminated.

Programmer Response: Probable user error. If this code occurs frequently, installation action is needed to decrease the space fixed at nucleus initialization time, or the number of active initiators.

Problem Determination: Table I, items 2, 11, 29.

106 Explanation: The error occurred during execution of a LINK, LOAD, ATTACH, or XCTL macro instruction.

An error was detected by the control program when it attempted to fetch the requested program into virtual storage. The contents of register 15 indicate the nature of the error:

Register 15

Contents in

Hexadecimal

Explanation

0B	A program check or a loop occurred in FETCH.
0C	Not enough core was available for FETCH to do a GETMAIN for the module or control blocks.
0D	The control program found an invalid record type in the load module.
0E	The control program found an invalid address in the load module.
0F	An uncorrectable input/output error occurred. At the time of abnormal termination, the contents of general purpose

register 6 plus X'400' is the address of the IOB ECB the post code of which may prove helpful in isolating the problem. (For discussion of the post codes see OS/VS I/O Supervisor Logic, GY24-5156.)

Note: The storage area related to the IOB ECB may be free unless the dump is taken immediately after the ABEND macro instruction is issued.

Programmer Response: If register 15 contains either a X'D' or X'E', it is a probable user error. Ensure that the load request in the problem was specified correctly and was not incorrectly modified. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 10c, 29. Table II, Format 1: trace option - TRACE = SYS.

If register 15 contains a X'F', resubmit the job, and see Table I, item 30, and Table II, Format 1: trace option - TRACE = IO.

10A Explanation: The error occurred during the execution of an R-form GETMAIN macro instruction for an authorized program.

The program requested more bytes of virtual storage from a system queue area than were available in real storage.

System Action: The task is terminated.

Programmer Response: Probable user error. If this code occurs frequently, installation action is needed to decrease the space fixed at nucleus initialization time, or the number of active initiators.

Problem Determination: Table I, items 2, 11, 29.

10B Explanation: The error occurred in the TIME service routine. An error was found in the input parameters.

Programmer Response: Check the parameters which were used on the TIME macro instruction. If 'MIC' or 'STCK' was specified, the area specified by address must have the caller's storage protect key.

10D Explanation: This completion code is found only in the jobstep tasks. It occurs when a jobstep task abnormally terminates and has a jobstep task as a subtask which is in 'step-must-complete' status.

Note: The original ABEND code is found in the mother task that abnormally terminated.

System Action: The job step subtask is abnormally terminated.

Programmer Response: Rerun the job with the original ABEND corrected.

Problem Determination: Table I, items 1, 5a, 16, 19, 23, 29.

10E Explanation: The error occurred during execution of the SPIE macro instruction. The PICA address is invalid.

Programmer Response: Probable user error. Correct the PICA address specified, ensuring that it is a valid virtual storage address assigned to the jobstep. Execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 19, 29.

112 Explanation: Invalid input was passed to SVC 18 by the BLDL or FIND macro instruction. This system completion code is accompanied by message IEC908I. Refer to the explanation of message IEC908I for complete information about the task that was terminated and for an explanation of the return code found in register 15.

System Action: For return codes 13 and 14, the DCB was written to the GTF trace data set.

Programmer Response: Probable user error. Correct the BLDL or FIND macro instruction. For return codes 03, 13, 04, and 14, make sure that the DCB is not being overlaid, in particular,

the fields DCBEBAD and DCBPOINT. Recompile the program and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29. Table II, format 3.

113 Explanation: The error occurred during execution of an OPEN macro instruction or an OPEN macro instruction with a TYPE = J operand. This system completion code is accompanied by message IEC142I. Refer to the explanation of message IEC142I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC142I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

115 Explanation: The error occurred during the execution of SVC 21 (STOW). The DCB did not point to a valid DEB, or the DEB did not point back to the DCB.

System Action: An unsuccessful attempt was made to invoke the STOW task recovery routine.

Programmer Response: Probable user error. Verify that register 1 contained the correct DCB address prior to issuing SVC 21, and that the DCB has not been overlaid since it was opened.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

117 Explanation: The error occurred during execution of a BSAM CLOSE macro instruction with a TYPE = T operand. This system completion code is accompanied by message IEC218I. Refer to the explanation of message IEC218I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC218I.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

118 Explanation: Invalid parameters were passed to DEVTYPE (SVC 24). This system completion code is accompanied by message IEC912I. Refer to the explanation of message IEC912I for complete information about the task that was terminated and for an explanation of the return code found in register 15.

Programmer Response: Probable user error. Correct the DEVTYPE macro instruction, recompile the program, and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

119 Explanation: Invalid input was passed to SVC 25. This system completion code is accompanied by message IEC914I. Refer to the explanation of message IEC914I for complete information about the task that was terminated and for an explanation of the return code found in register 15.

System Action: For return codes 12 and 13, the DCB is written to the GTF trace data set. For return code 14, both the DCB and IOB are written.

Programmer Response: Probable user error. Make sure that your program does not overlay the DCB and IOB fields described by the error code. Correct the error, and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29. Table II, format 3.

11A *Explanation:* The error occurred trying to store into a user-supplied OS/VS CAMLST work area.

System Action: SVC 26 received a protection check because the protect key of the supplied work area did not match the user's protect key.

Programmer Response: Probable user error. Correct the pointer in the OS/VS LOCATE parameter list to the LOCATE work area, and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

122 *Explanation:* The operator canceled the job and requested a dump. The job may have been canceled because it appeared to be in a loop or because it was waiting for resources that were not immediately available (for example, direct access space or devices). Perhaps the job was canceled to correct a system interlock condition (for example, two tasks enqueued on a resource without an intervening dequeue), or the job may have violated a procedure established for your installation. There are many reasons why an operator might cancel a job. There may be nothing wrong with your program.

System Action: The system terminates the job and produces a dump to the data set described by the SYSABEND or SYSUDUMP DD statement in the canceled job step.

Programmer Response: Find out why the operator canceled your job. Make any necessary corrections, and resubmit the job.

Problem Determination: Table I, items 1, 2, 5a or b, 16, 23, 29.

128 *Explanation:* The error was detected during execution of an EXTRACT macro instruction.

The address of the list in which the control program was to store the requester fields was invalid. The beginning address for the list did not define a fullword boundary, or the list did not begin and end within the storage assigned to the job step. (The beginning address of the list is specified in the first operand of the macro instruction; the length of the list is determined by the number of fields requested.)

Programmer Response: Probable user error. Determine if the first operand of the macro instruction was specified correctly or if program errors had incorrectly modified the EXTRACT macro expansion. After making corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

12A *Explanation:* The error was detected during execution of an ATTACH macro instruction.

In a GSPV or GSPL operand, the macro instruction specified that a subpool was to be given to the subtask being created. The attaching task owned the subpool, but had previously shared it with other subtasks through SHSPV and/or SHSPL operands. A task is not permitted to give an owned subpool to a subtask if it has shared the subpool with one or more other subtasks.

Programmer Response: Probable user error. Change the ATTACH macro instruction to specify the subpool in an SHSPV or SHSPL operand. Recompil the program, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

12C *Explanation:* The error was detected during execution of a CHAP macro instruction.

The address of the task control block (TCB) for the subtask whose priority was to be changed was invalid. This address is

contained in the fullword addressed by the second operand of a CHAP macro instruction. The address was invalid for one of the following reasons:

- It was not a valid TCB address.
- The valid task control block at the address was not associated with a subtask of the task issuing the macro instruction.
- It was not a multiple of 4.
- The valid task has terminated.

Programmer Response: Probable user error. Change the address specification and ensure that it and the task control block were not incorrectly modified by the problem program. Recompil the program, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

12D *Explanation:* The error occurred during execution of an overlay program.

The overlay supervisor found that words 3 and 4 of the segment table were incorrect.

Programmer Response: Probable user error. Check for program errors that caused the segment table to be incorrectly modified. After making corrections, assemble, link edit, and execute the program again.

Problem Determination: Table I, items 1, 5a, 9, 29.

12E *Explanation:* The error occurred in the TTIMER service routine. An error was found in the input parameters.

Programmer Response: Check the parameters specified on the TTIMER macro instruction. If 'MIC' is specified, the area specified by address must have the caller's storage protect key.

12F *Explanation:* The error occurred in the STIMER service routine. An error was found in the input parameters.

Programmer Response: Check the parameters specified on the STIMER macro instruction. Consult OS/VS2 Supervisor Services and Macro Instructions, GC27-6979 for format and restrictions.

130 *Explanation:* The error occurred during execution of a DEQ macro instruction.

The DEQ macro instruction specified a resource not previously specified by an ENQ macro instruction under the same task. That is, the program had not requested control of a resource it was attempting to release. The DEQ macro instruction did not contain a RET = HAVE operand.

Programmer Response: Probable user error. Check the DEQ macro instruction for incorrect qname or rname operands, or specify RET = HAVE in the DEQ macro instruction, or add an ENQ macro instruction before the DEQ macro instruction. Recompil and execute the program again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

133 *Explanation:* An unauthorized caller has invoked SVC Dump via the SDUMP macro. If the caller requested linkage by SVC 51 he was not authorized by APF or was not running under a control program key. If the caller requested linkage by BRANCH, he was TCB dispatchable. Branch entry callers must be key 0, supervisor state and non-TCB dispatchable. Non-TCB dispatchable means the caller is running in SRB mode or has a lock (any lock) or is disabled.

System Action: The caller is abnormally terminated. If a recovery routine is available, it is given control.

Programmer Response: Authorize the calling routine of SVC Dump. If the calling routine cannot be authorized, use the SNAP dump function.

If the branch entry is being invalidly used, change the state in which the caller is running or use the SVC entry.

Problem Determination: Table I, items 5ab, 7c, 13, 19, 27, 29.

135 *Explanation:* An error occurred during the processing associated with SVC 53, which obtains and releases exclusive control of a resource associated with a BDAM data set. The task recovery routine for this SVC determined that all user control blocks required as input to the SVC were in the user's region and key, hence the error could not be ascribed to any user control block.

System Action: Message IEC903I is issued.

Operator Response: Notify the system programmer.

Problem Determination: Table I, items 4, 5a, 13, 16, 29.

137 *Explanation:* The error occurred at an end-of-volume on a magnetic tape. This system completion code is accompanied by message IEC022I. Refer to the explanation of message IEC022I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC022I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

138 *Explanation:* The error occurred during execution of an ENQ macro instruction.

Two ENQ macro instructions were issued for the same resource in the same task without an intervening DEQ macro instruction. The second ENQ macro instruction did not specify TEST, USE, or HAVE in its RET operand.

Programmer Response: Probable user error. Specify RET = TEST, RET = USE, or RET = HAVE in the second ENQ macro instruction, or add a DEQ macro instruction between the two ENQ macro instructions, or delete one of the ENQ macro instructions. Recompile and execute the program again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

139 *Explanation:* An error occurred during the processing associated with SVC 57, which frees a buffer or extends the unscheduled test (via the FREEDBUF macro issued either by the user or the system). The BDAM task recovery routine for this SVC determined that all user control blocks required as input to the SVC were in the user's region and key, hence the error could not be ascribed to any user control block.

System Action: Message IEC905I is issued.

Operator Response: Notify the system programmer.

Problem Determination: Table I, items 4, 5a, 13, 16, 29.

13C *Explanation:* An invalid request has been detected.

If register 15 contains '04', an invalid ESTAR request has been detected because of one of the following reasons:

- Requestor is not authorized via APF or is not in key 0-7 or is not in supervisor mode.
- An EXIT address of zero has been specified.
- ESTAR CT has been specified and an exit already exists.
- ESTAR OV has been specified and the most recent exit is not an ESTAR exit.

If register 15 contains '08', an invalid ESTAI request has been detected because of one of the following reasons:

- Caller is not ATTACH.
- An EXIT address of zero has been specified with CT.
- OV has been specified.
- TCB address missing or invalid.

If register 15 contains '0C', an invalid branch entry has been detected because of one of the following reasons:

- Requestor is not running under an SVRB.
- Request is not for ESTAE.
- The local lock was not obtained before entry.

System Action: The caller is abnormally terminated. If a recovery routine is available, it is given control.

Programmer Response: Probable user error. Rewrite the program that issues ESTAE or modifies the parameter list built by the ESTAE macro, to correct the failing request.

Note: The LSQS dump option is specified with the ABEND macro instruction.

Problem Determination: Table I, items 5a, 16, 19, 29.

13E *Explanation:* The task which created a subtask has issued a DETACH for that subtask, specifying STAE = NO, before that subtask has terminated.

System Action: The subtask is abnormally terminated to force its completion.

Note: This may or may not be an error, depending on the intent of the user. Consequently, the task issuing the DETACH is not terminated.

Programmer Response: If the subtask must complete its processing before being detached, synchronization must be achieved by use of the ECB or the EXTR operand on the ATTACH macro instruction creating the subtask.

Problem Determination: Table I, items 1, 16, 23, 29.

13F *Explanation:* An error occurred during execution of a checkpoint restart.

System Action: The system did not produce a dump.

Programmer Response: Respond as indicated for message IHJ007I, which appears on the console.

144 *Explanation:* The error occurred during the execution of SYNADAF, where it was determined that an invalid access method code was specified in the high order byte of register 15.

Programmer Response: Probable user error. Make sure that the ACSMETH parameter on the SYNADAF macro instruction is correctly coded, or that the high order byte of register 15 contains a valid access method code before issuing SVC 68.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

145 *Explanation:* The error occurred during the execution of SVC 69 (BSP). Register 15 contains a return code indicating the cause of the error. See message IEC916I for a complete description of the possible return codes and their meanings.

System Action: The backspace task recovery routine has been invoked. If the caller's DCB, main IOB, and first ICB for chained scheduling, or first IOB for normal scheduling are in his region, an attempt was made to trace them to the SYS1.TRACE data set.

Programmer Response: Probable user error. Verify that register 1 contained the correct DCB address prior to issuing BSP and that the DCB has not been overlaid since being opened. If the DCB is valid, verify that it contains the correct IOB and/or ICB addresses and that neither the IOBs and/or ICBs have been overlaid.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29. Table II, format 3.

14F *Explanation:* The error occurred during execution of the STATUS macro instruction.

The routine attempted to execute the STATUS macro instruction for other than the STOP, STOP SYNCH, or START function and was not supervisor key (0-7).

Programmer Response: Probable user error. Correct the program errors making sure that the STATUS macro is not being used for other than the STOP or START function. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

151 *Explanation:* The error occurred during the execution of SETPRT. The parameter list whose address was passed to SETPRT in register 1 was not in the user's region.

System Action: Message IEC918I is issued.

Programmer Response: Probable user error. Make sure that the SETPRT macro instruction is correctly coded. Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

153 *Explanation:* An error occurred within cross-address space communications during SMF record processing. The SMF error handler has abnormally terminated the SMF writer to terminate SMF recording; or has abnormally terminated the task that requested SMF services at the time the error occurred.

System Action: SMF recording is terminated and the operator is given the choice of continuing or restarting the system. If the error occurred after SMF was terminated, the affected task is terminated.

Programmer Response: Probable system error. At a convenient time, restart the system with SMF recording active.

Programmer Response: Table I, items 2, 16, 29.

157 *Explanation:* The user requested that a WTOR message be deleted by SVC 87 (DOM with REPLY = YES option). The issuer of the DOM request was neither a task in the same job step and address space as the issuer of the WTOR nor was the DOM issuer a privileged task (supervisor mode or key 0-7 or APF authorized).

System Action: The DOM request is ignored. The DOM parameter list and the failing message id are shown on the dump. Any other message ids in the parameter list were also ignored.

Programmer Response: Make sure that the correct message id is being used in the DOM request or make sure that the DOM issuer is in the same job step as the WTOR issuer.

Problem Determination: Table I, items 1, 2, 5a, 16, 23, 29.

15C *Explanation:* An SVC 92 was issued and the request was not issued in the supervisor state.

System Action: The task is abnormally terminated.

Programmer Response: Probable user error. Ensure that the user is authorized for use of SVC 92 or issue SVC 0.

Problem Determination: Table I, items 1, 2, 11 and 29 if stopped on the address of ABTERM entry; otherwise, items 16 and 29.

15D *Explanation:* User specified an invalid data area to SVC 93 (TGET/TPUT).

System Action: The user is abnormally terminated and processing continues.

Programmer Response: Supply a data area for access by the program invoking SVC 93. A TPUT request requires read access, a TGET request requires write access.

Problem Determination: Table I, items 15, 16, 29.

15F *Explanation:* Invalid invocation of the system resources manager has occurred. During processing of a SYSEVENT, one of several possible error conditions was discovered. Register 15 contains one of the following reason codes:

04 Invalid ASID, SYSEVENT code or input parameter.

08 Program was not authorized to issue the SYSEVENT.

12 A page fault occurred in referencing a data area assumed to be fixed.

16 Protection check - program did not have the correct storage key for storing in parameter data area.

20 SRM Lock held prior to SRM invocation.

System Action: The program issuing the SYSEVENT in which the error was detected is terminated.

Programmer Response: Determine whether the error was the result of an invalid invocation of the system resources manager by a problem program. If the system resources manager was invoked by a system component and the error recurs, see the problem determination section below.

Problem Determination: Table I, items 1, 4, 5a, 18, 29.

169 *Explanation:* The error occurred during the execution of IMGLIB with the CLOSE option. The DCB address passed to IMGLIB in register 1 was invalid. This system completion code is accompanied by message IEC919I. Refer to the explanation of message IEC919I for complete information about the task that was terminated and for an explanation of the return code in register 15.

Programmer Response: Probable user error. Make sure that the IMGLIB CLOSE macro instruction is correctly coded. Make sure that the DCB address passed to IMGLIB is the same address returned to your program by a previous IMGLIB OPEN, and that your program has not issued a prior IMGLIB CLOSE specifying this DCB address. Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29. Table II, format 3.

16B *Explanation:* The error occurred during execution of a MODESET macro instruction. The control program found that the parameter list created from the macro instruction was invalid.

Programmer Response: Probable user error. Correct the specification of the macro instruction or the program errors that incorrectly modified the parameter list. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 23, 29.

16D *Explanation:* The error occurred during execution of one of the extended SVC routers (ESR), SVCs 109, 116, and 122. An invalid ESR code was detected in register 15.

This error is the result of:

- The function invoked not being included in the system.
- The ESR code passed to SVC 109, 116, or 122 having no related function.

Programmer Response: In the first case, make sure that the item being invoked has been included in the system. In the second case, correct the ESR code, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

16E *Explanation:* The control program requested that a DEBCHK function be performed on a data extent block (DEB) obtained from the DCB passed by the program. That function could not be completed. The contents of register 15 indicate the nature of the error.

Programmer Response: The response depends upon the contents of register 15:

Register 15
Contents in

Hexadecimal	Explanation
04	The indicated DEB pointer is not in the DEB table. A DEB whose address is not in the DEB table cannot be verified, deleted, or purged.
08	Invalid TYPE specified (macro not issued). Acceptable types are ADD, DELETE, VERIFY, and PURGE.
10	DEBDCBAD does not point to DCB. It is assumed that the DCBDEBAD field of the DCB points to the DEB, but the DEBDCBAD field of the DEB must point to the DCB when TYPE = VERIFY, ADD, or DELETE.
14	AM value does not equal DEBAMTYP value. When a DEB pointer is added to the table, the access method (AM) value, if given, is placed in the DEBAMTYP field of the DEB. If no AM value is coded, a 0 is inserted in the field. Subsequent DEBCHKs issued to verify or delete that DEB pointer must either specify the same AM value or omit the operand. When the operand is omitted, no comparison is made.
18	DEB not on TCB chain for TYPE = ADD. Before the DEB pointer can be added to the table, the DEB itself must be queued on the current TCB DEB chain (the TCBDEB field points to the first DEB in the chain.)
1C	DEBAMTYP or DEBTBLOF = 0 for TYPE = ADD. Values other than 0 indicate a pointer to this DEB already exists in the DEB table.
20	DEB table contains 32760 bytes and TYPE = ADD. The current DEB table does not have space for this new DEB pointer. To increase the table size by the increment of 24 would cause the table to exceed its maximum size.

171 *Explanation:* The real storage manager was invoked with a request for a PGFIX, PGFREE, PGLOAD, or PGOUT service and the request was illegal or invalid. The request is considered to be illegal if the storage range specified by the input parameters does not exist, (a GETMAIN was not issued for it). The following register contents are supplied for diagnostic purposes:

- Register 11 contains the address of the virtual subarea list (VSL) passed if the page services call was list form. This value will be zero if a register form call was made.
- Register 12 contains the address of the event control block (ECB) passed, or zero if none was supplied.
- Register 13 and 14 contain the VSL entry being processed when the error was detected. See OS/VS2 System Data Areas, SYB8-0606 for a description of the VSL.
- Register 15 contains a return code which will be either:
 - 4 - The error was detected by the page services routine. This generally indicates that the caller did not own the virtual storage defined by the VSL list entry.
 - 16- The input VSL or ECB failed to pass the page services interface validity check.

Possible errors are:

- Input parameter error in virtual subarea list (VSL):
 - VSL not on a fullword boundary.
 - VSL not in fixed storage.
 - Undefined or conflicting options flags.
- End address of range not greater than beginning address.
- An option was specified which is not supported by VS2, Release 2. These are RSAOPT and ECBIND.
 - VSL is store-protected from the caller.
- Input parameter error on ECB:
 - ECB not on fullword boundary.
 - ECB is store-protected from caller.

- ECB not specified for PGFIX.
- ECB specified for PGOUT.

Programmer Response: Probable user error. Correct the program and rerun the job. If PGFIX or PGFREE was requested and the call was not authorized, obtain proper authorization from the installation manager and rerun the job.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

172 *Explanation:* An SVC 114 was issued with one of the following conditions:

- The SVC 114 authorized bit was not set in the DEB.
- The protect key was non-admissible (that is, not 0 thru 7).
- The request was not issued in the supervisor state.
- The authorization bit was not set in the JSCB.

System Action: The task is abnormally terminated.

Programmer Response: Probable user error. Ensure that the user is authorized for use of SVC 114 or issue SVC 0.

Problem Determination: Table I, items 1, 2, 11 and 29 if stopped on the address of ABTERM entry; otherwise, items 16, 29.

177 *Explanation:* The TESTAUTH routine detected invalid input parameters. One of the following invalid parameters was detected:

- An invalid bit mask in register 1.
- RBLEVEL = 2 but RB is the last RB chained or out of range.
- The function code is greater than 256 or out of range.
- The authorization code is greater than 256 or out of range.

Programmer Response: Probable user error. Make sure that the parameter list to TESTAUTH is valid. The only valid IBM-supplied authorization or function code is one (1). If the user's system supplied an authorization matrix, check to see that the function and authorization codes fall within the range of the user-defined codes.

Problem Determination: Table I, items 1, 5a, 15, 16, 29.

178 *Explanation:* The error occurred during the execution of an RC or RU form GETMAIN macro instruction for an authorized program.

The program requested more bytes of virtual storage from a system queue area than were available in real storage.

System Action: The task is terminated.

Programmer Response: Probable user error. If this code occurs frequently, installation action is needed to decrease the space fixed at nucleus initialization time, or the number of active initiators.

Problem Determination: Table I, items 2, 11, 29.

179 *Explanation:* An error was discovered in the parameters associated with an I/O request, during initial request processing. At the time of the ABEND, register 3 contains a pointer to the IOMB and register 2 contains a reason code as follows:

- 04 Error return from SETLOCK macro.
- 08 Invalid AMB or IOMB.
- 12 Invalid CPA.
- 16 Error return from page fix.
- 20 Invalid buffer address. This error may appear as reason code 16.
- 24 Invalid addresses in chain CCW's.
- 28 Blocksize is not 4K for track overflow.

System Action: Processing continues.

Programmer Response: Probable user error. Make sure that the problem program did not incorrectly modify the control block structure or associated parameters. After making

necessary corrections, recompile and execute the job step again.

17A Explanation: The error occurred during execution of an EVENTS macro instruction for either a table creation or deletion. The control program found that an invalid EVENTS table address was specified.

Programmer Response: Probable user error. Make sure an EVENTS macro was issued to construct the EVENTS table in question. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

17B Explanation: The PURGEDQ SVC was issued and an invalid ASID was specified on the ASID = parameter. The specified address space does not exist.

Programmer Response: A supervisor state, key 0, or authorized program has specified an invalid ASID parameter as input to the PURGEDQ SVC routine. Check for invalid coding of PURGEDQ input.

Problem Determination: Table I, items 1, 5a, 15, 16, 29.

17D Explanation: The error occurred during execution of an EVENTS macro instruction for a wait request. The control program found that an invalid EVENTS table address was specified.

Programmer Response: Probable user error. Make sure an EVENTS macro was issued to construct the EVENTS table in question. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

1FA Explanation: The error occurred during execution of a data management request for a spool data set. JES2 found the data management control blocks were no longer valid.

Programmer Response: Probable user error. Verify that data management control blocks were not modified by the problem program. After making the correction, execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

1FB Explanation: When caused by module IATDMEB, one of the following error conditions occurred:

- The data set has been closed and the user is still attempting to perform I/O.
- The IATYDSB and IATYSVT control blocks were not valid.
- An invalid function code was passed.
- An error condition was returned from a start I/O operation in the user's address space.
- The IATYDAT address was not within a correct address range.
- An unprotected buffer could not be allocated for a POINT operation.
- While attempting to set up a data management WAIT, a data management function was currently waiting.
- While attempting to set up a subsystem interface WAIT, a subsystem function was currently waiting.
- An invalid IATYDAT was found on the DAT queue.
- An invalid unprotected buffer address was found.

When caused by module IATSIDM, one of the following error conditions occurred:

- No JDSENTRY was found when an attempt was made to update the JDSENTRY during unallocation.
- An error occurred in the disk MRCH allocator routine when trying to open the data set.
- A catastrophic error occurred on the global processor while attempting communication.

- A user address space buffer could not be allocated to a data set during OPEN.
- No storage space was available for the global interface for the external writer data set.
- The OSE cannot be found at unallocation for the external writer.
- A permanent I/O error was encountered on an output data set.
- Bad data was sent to the global processor via a SSISERV; the request could not be serviced.

System Action: For IATDMEB, the step is terminated. For IATSIDM, the user address space is terminated.

Operator Response: None.

Programmer Response: Take the problem to a system programmer. Supply a SYSABEND dump. Also, for IATDMEB, correct any invalid I/O operations within your program.

Problem Determination: Table I, item 5A.

1FC Explanation: An error occurred during the execution of the SVC first level interrupt handler. In an attempt to recover the system, the supervisory control program has abnormally terminated the task that issued the SVC request.

System Action: The active task abnormally terminated.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 16, 23, 29.

1FD Explanation: An error was detected while MF/1 was sampling data about the state of the system.

System Action: All MF/1 measurement collection is terminated. As a result of this error, reinstatement of MF/1 may be attempted. If the reinstatement is successful, MF/1 will continue under the control of the original options. If the reinstatement fails subsequently, MF/1 is terminated.

Programmer Response: If the error persists, obtain a dump.

Problem Determination: Table I, items 5b, 16, 18, 29.

200 Explanation: An error was detected during EXCP processing; the storage protect key of the input/output block (IOB), the event control block (ECB), or the data control block (DCB) was not the same as the protection key field in the request block of the caller.

This system completion code will result if a program check occurs while the IOB, ECB, or DCB is being loaded for IOS EXCP validity checking. Typical causes are premature freeing or overrunning of control blocks.

System Action: The task is abnormally terminated.

Programmer Response: Probable user error. Verify that the blocks were correctly modified by the problem program. If the EXCP access method is being used, make sure that the input/output block and the event control block are correctly built. After making corrections, execute the job step again. If an abnormal termination dump is available, the TCB field TCBEXCPD (at offset C0) points to the EXCP problem determination area. The items in the problem determination area of greatest interest to you are:

- Offset 10 contains a copy of the registers when the program check occurred.
- Offset 50 contains the contents of the request queue element (RQE) if allocated, when the program check occurred.
- Offset 4 contains a copy of the program status word (PSW) when the program check occurred.
- Offset E contains the interruption code when the program check occurred.

Problem Determination: Table I, items 1, 3, 5b, 15, 19, 29.

201 *Explanation:* The error occurred during execution of a WAIT macro instruction.

The macro expansion contained an invalid event control block (ECB) address.

Programmer Response: Probable user error. Make sure that the event control block address specified is a valid virtual storage address and that it was not incorrectly modified. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 19, 29.

202 *Explanation:* The error occurred during execution of a POST macro instruction.

The control program found an invalid request block (RB) address in the 3 low-order bytes of the event control block (ECB) specified by the problem program.

The address of the request block is placed in the event control block during execution of a WAIT macro instruction. This address must remain in the event control block until a POST macro instruction places a post code or zeros in the event control block. The request block is a control block used for internal purposes by the control program.

Programmer Response: Probable user error. Make sure that the contents of the event control block were not modified after the WAIT macro instruction and before the POST macro instruction.

Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

206 *Explanation:* The error occurred during execution of a LINK, LOAD, XCTL or DELETE macro instruction. One of these errors was detected by the control program:

- The address of the parameter list supplied in the macro instruction was erroneous.
- The address of the name (if EP or EPLOC was specified), or the address of the directory entry (if DE was specified) was erroneous.
- If DE was specified, the DE was not long enough to contain the information required for the module or the DE contained an invalid C-byte (user data field length).

Programmer Response: Probable user error. Check for program errors which incorrectly modified the parameter list. If the DE operand was specified, check that the macro instruction



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is correct for the attributes of the requested module. Ensure that the address specified in the EP, EPLOC or DE operand was not incorrectly specified or modified. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

20B Explanation: The error occurred in the TIME service routine. No usable time-of-day clock was available in the system from which to obtain the correct time.

Programmer Response: Probable hardware error with the system time-of-day clocks. None.

Problem Determination: Table I, items 18, 30.

20D Explanation: This completion code is found only in jobstep tasks. It indicates that an error occurred while a subtask was operating in 'step-must-complete' status, or that a subtask issued an ABEND macro with the 'STEP' option. As a result, the abnormal termination was extended to encompass the entire jobstep.

Note: The original completion code is found in the TCB of the subtask which caused the error.

System Action: The jobstep tree is terminated.

Programmer Response: Correct the original error.

Problem Determination: Table I, items 5, 16, 19, 29.

20E Explanation: The error occurred during execution of the SPIE macro instruction. The PIE address is invalid.

Programmer Response: Probable user error. Correct the PIE address specified, ensuring that it is a valid virtual storage address assigned to the job step. Execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

20F Explanation: A non-supervisor state module requested usage of SVC 15 in IOS. SVC 15 is only intended for supervisor state modules and any other requestor is not authorized.

Operator Response: Notify installation manager or system programmer immediately. Hold all output relevant to the job.

Programmer Response: Probable user error.

212 Explanation: An error occurred during the execution of SVC 18 which could not be attributed to invalid user input. This system completion code is accompanied by message IEC909I. Refer to the explanation of message IEC909I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: Message IEC909I is issued indicating whether a dump was taken to the SYS1.DUMP data set.

Programmer Response: Make sure that the BLDL or FIND macro instruction is correctly coded, and that the parameter list and control blocks involved are not modified by your program during the execution of SVC 18.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 18, 29.

213 Explanation: The error occurred during execution of an OPEN macro instruction for a direct access device. This system completion code is accompanied by message IEC143I. Refer to the explanation of message IEC143I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated to the applicable message.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

214 Explanation: The error occurred during execution of a CLOSE macro instruction for a data set on magnetic tape. This system completion code is accompanied by message IEC210I. Refer to the explanation of message IEC210I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC210I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

215 Explanation: The error occurred during the execution of SVC 21 (STOW). This system completion code is accompanied by message IEC910I. Refer to the explanation of message IEC910I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: The STOW task recovery routine has been invoked. If the caller's DCB is in his region, and attempt was made to trace it to the SYS1.TRACE data set.

Programmer Response: Probable user error. For return codes 01, 02, and 03, verify that register 1 contained the correct DCB address prior to issuing SVC 21 and that the DCB has not been overlaid since being opened. For return code 04, verify that register 0 contained the correct parameter list address and that the list is within the caller's region prior to issuing SVC 21.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29. Table II, format 3.

218 Explanation: An error occurred during the execution of DEVTYPE (SVC 24) which could not be attributed to invalid user input. This system completion code is accompanied by message IEC913I. Refer to the explanation of message IEC913I for complete information about the task that was terminated and for an explanation of the return code in register 15.

Programmer Response: Make sure that the DEVTYPE macro instruction is correctly coded, and that the areas passed to DEVTYPE are not freed by your program during the execution of SVC 24.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 18, 29.

219 Explanation: An error occurred during the execution of SVC 25 which could not be attributed to invalid user input. This system completion code is accompanied by message IEC915I. Refer to the explanation of message IEC915I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: Message IEC915I is issued to indicate whether a dump was taken to the SYS1.DUMP data set.

Programmer Response: Make sure that your program does not alter the DCB or IOB during the execution of SVC 25.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 18, 29.

222 Explanation: The operator canceled the job. The job may have been canceled because it appeared to be in a loop or because it was waiting for resources that were not immediately available (for example, direct access space or devices). Perhaps the job was canceled to correct a

system interlock condition (for example, two tasks enqueued on a resource without an intervening dequeue). Or the job may have violated a procedure established for your installation. There are many reasons why the operator might cancel a job. There may be nothing wrong with your program.

System Action: The system terminates the job.

Programmer Response: Find out why the operator canceled your job; make any necessary corrections. Rerun the job making sure the operator enters the command CANCEL jobname, DUMP.

Problem Determination: Table I, items 1, 2, 5a or b, 16, 23, 29.

228 Explanation: The error was detected during execution of an EXTRACT macro instruction.

The location of the input parameter list was invalid. (The input parameter list, ordinarily created through expansion of the standard or MF = L form of the EXTRACT macro instruction, describes the function to be performed.) The starting address provided, indicated that the parameter list did not begin either on a fullword boundary or within the area of storage assigned to the job step.

Programmer Response: Probable user error. Correct the program so that the address of the input parameter list is valid, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

22A Explanation: The error was detected during execution of an ATTACH macro instruction.

A GSPV, GSPL, SHSPV, or SHSPL operand specified a subpool number greater than 127. The subpools above 127, that is, subpools 128 through 255, are supervisor subpools. A problem program is not permitted to use these subpools.

Programmer Response: Probable user error. Change the macro instruction to specify a problem program subpool (1 through 127). If the macro instruction is specified correctly, check for program errors that incorrectly modify it. Recompile the program and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

Table II, Format 2: trace option keyword(s) - TRACE = SVCP, event keyword(s) - SVC = 42,END.

22C Explanation: The error occurred during execution of a CHAP macro instruction.

The address of the fullword specified in the second operand of the CHAP macro instruction is invalid. This fullword contains the address of the TCB for the subtask whose priority was to be changed. The address was invalid for one of the following reasons:

- It was not a multiple of 4.
- The addressed virtual storage has not been allocated.
- The storage key of the fullword does not match the protection key of the issuer of the CHAP macro.

Programmer Response: Probable user error. Change the CHAP macro instruction to specify a valid fullword address, and ensure that this fullword will contain the address of the TCB at the time the CHAP macro instruction is executed, and that the specification was not incorrectly modified by the problem program. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

Table II, Format 2: trace option keyword(s) - TRACE = SVCP, event keyword(s) - SVC = 44,END.

22D Explanation: The error occurred during execution of an overlay program.

The overlay supervisor found an invalid address in the segment table or the entry table. The address pointed to a location outside the boundaries of the virtual storage assigned to the job step.

Programmer Response: Probable user error. Check for program errors that caused the segment table or entry table to be incorrectly modified. Correct the program; link-edit and execute the job step again.

Problem Determination: Table I, items 1, 5a, 9, 16, 29.

22E Explanation: The error occurred in the TTIMER service routine. No usable time-of-day clock was available in the system from which to obtain the correct time.

Programmer Response: Probable hardware error with the system time-of-day clocks. None.

Problem Determination: Table I, items 18, 30.

22F Explanation: No usable combination of time-of-day clock and clock comparator (REAL or WAIT type request) or no usable CPU timer (TASK type request) is available.

Programmer Response: Probable hardware error with the system clocks. None.

Problem Determination: Table I, items 18, 30.

230 Explanation: The error occurred during execution of a DEQ macro instruction.

An invalid length was specified for the name length representing a resource. The length was specified in the rname length operand of the DEQ macro instruction, was supplied by the assembler program, or was contained in the byte immediately preceding the resource name.

Programmer Response: Probable user error. Correct the invalid macro instruction or the program errors that incorrectly modified the length. Recompile the program and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

233 Explanation: Invalid parameters have been passed to SVC Dump. One of the following is true:

- The address of the parameter list is zero.
- The parameter list is not an SVC Dump or SNAP parameter list.
- The user-supplied data set is on an unsupported device.
- In a user-supplied storage range, the start address is greater than the end address.
- The user-supplied data (for HDR = or HDRAD =) is greater than 100 characters.
- The 4K SQA buffer has been requested (BUFFER = YES) but is not locked.
- The parameter list or what it points to is in the 4K SQA buffer.
- The user-supplied a DCB address and the DCB was not open.
- The specified ASID was syntactically invalid.

System Action: The caller is abnormally terminated. If a recovery routine is available, it is given control.

Programmer Response: Correct the invalid parameters and reissue the SDUMP macro instruction.

Problem Determination: Table I, items 5ab, 7c, 13, 19, 29.

235 Explanation: An error occurred during processing associated with SVC 53, which obtains and releases exclusive control of a resource associated with a BDAM data set. The task recovery routine for this SVC determined that a control block required as input to SVC 53 was not in the user's region and/or key. This system

completion code is accompanied by message IEC902I. Refer to the explanation of message IEC902I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: Message IEC902I is issued, specifying a cleanup code that indicates the results of the cleanup of resources attempted by the recovery routine.

Programmer Response: Insure the validity of the control block from which the address of the block in error was taken. For example, make sure that the input specified in the RELEX macro, the BLKREF address, is valid and in the correct format and that the DCB address passed is valid. If a RELEX macro was not issued, make sure that the IOB related to the exclusive control request is correct and contains the correct DECB address (IOBECBPT) and DCB address (IOBDCBPT). In addition, check the DCBEBAD field in the DCB to ensure that it contains the correct DEB address, and that the DEB (DEBDCBAD) points back to this DCB. If the next IOB is found to be in error, find the entry in the read exclusive list associated with the requested block and ensure that the RDXIOBUQ field is correct.

Problem Determination: Table I, items 4, 5b, 16. Table II, item 3.

237 **Explanation:** The error occurred at an end-of-volume. This system completion code is accompanied by message IEC023I. Refer to the explanation of message IEC023I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC023I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 19, 29.

238 **Explanation:** The error occurred during execution of an ENQ macro instruction. An invalid length was specified for the name representing the resource. This length was specified in the rname length operand of the ENQ macro instruction, was supplied by the assembler program, or was contained in the byte immediately preceding the resource name.

Programmer Response: Probable user error. Correct the invalid macro instruction or the program errors that incorrectly modified the length. Recompile the program, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

239 **Explanation:** An error occurred during the processing associated with SVC 57, which frees a buffer or extends the unscheduled text (via the FREEDBUF macro issued either by the user or the system). The BDAM task recovery routine for this SVC determined that a control block required as input to SVC 57 was not in the user's region and/or key. This system completion code is accompanied by message IEC902I. Refer to the explanation of message IEC902I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: Message IEC902I is issued, specifying a cleanup code that indicates the results of the cleanup of resources attempted by the recovery routine.

Programmer Response: Insure the validity of the control block from which the address of the block in error was taken. The DECB and DCB were specified in the FREEDBUF macro as input to the SVC. Make sure that the DCBBUFCB field in the

DCB contains the correct address of the buffer control block and the DCBDYNB field contains the correct address of the unscheduled list (if address space was virtual). The BCB or USL contain the address of the next IOB waiting to get a buffer, if one was not available. Ensure that this address has not been overlaid. Make sure also that the input DECB contains the address of the buffer being freed (DECAREA field) and, if a buffer was requested for keys also, that the DECKYADR field contains the correct address.

Problem Determination: Table I, items 4, 5b, 16, 29. Table II, format 3.

23E **Explanation:** The error was detected during execution of a DETACH macro instruction. Either 1) the parameter passed to DETACH in register 1 was not a fullword address, 2) the storage key of that address did not match that of the issuer of the DETACH, or 3) the parameter contained in the addressed fullword of the issuer was not the address of a subtask of the issuer of the DETACH.

System Action: The issuer of the DETACH is abnormally terminated.

Programmer Response: Probable user error. Change the DETACH macro instruction to specify a valid address of the TCB, and make sure that it was not incorrectly modified by the problem program. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

23F **Explanation:** An unauthorized user has attempted to read or write a checkpoint data set.

System Action: The task is abnormally terminated and message IEC954I is issued.

Programmer Response: See message IEC954I for further details.

240 **Explanation:** The error occurred during execution of a RDJFCB macro instruction. This system completion code is accompanied by message IEC155I. Refer to the explanation of message IEC155I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC155I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

244 **Explanation:** The error occurred during the execution of SYNADAF. It was determined that the register savearea provided by the user was invalid.

Programmer Response: Probable user error. Make sure that when SYNADAF (SVC 68) is issued, register 13 points to a register savearea within the user's region. If SYNADAF is issued from a SYNAD routine, make sure that register 13 has not been altered since the SYNAD routine was entered, and that register 13 contained the address of a valid register savearea when the last data management macro was issued. Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

245 **Explanation:** An error occurred during the execution of SVC 69 (BSP) which could not be attributed to invalid user input. This system completion code is accompanied by message IEC917I. Refer to the explanation of message IEC917I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: The backspace task recovery routine has been invoked. Low core and the caller's region have been dumped to the SYS1.DUMP data set. The caller's input register 1 and his DCB have been written to the SYS1.LOGREC data set.

Programmer Response: Make sure that the BSP instruction is correctly coded, and that the DCB and IOBs and/or ICBs for the data set being processed are not overlaid by your program during the execution of SVC 69.

Problem Determination: Table I, items 1, 2, 3, 7ab, 11, 13, 15, 18, 29.

251 Explanation: The error occurred during the execution of SETPRT. The DCB exit list was determined to be invalid. This system completion code is accompanied by message IEC918I. Refer to the explanation of message IEC918I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: Message IEC918I is issued.

Programmer Response: Probable user error. Make sure that the last entry in the exit list has a high-order bit set to B'1'. Make sure that any FCB image entry in the exit list points to a valid FCB image, that the image is within the user's region, that any FCB image has a valid length field and that it is terminated by an end-of-FCB image indicator. Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

25F Explanation: A system failure (machine check or random store, for example) has destroyed data used by the system resource manager in controlling this address space.

System Action: If the terminated task is the master scheduler command processor, and the system resource manager has been processing a NEWIPS sysevent, the new IPS may have been lost.

If the system measurement facility (MF/1) has been terminated, accumulated service and workload measurements may not be valid.

In all other cases, data pertaining to the address space's swap status or performance characteristics may have been lost and the system resources manager may no longer be able to control the address space according to its previously assigned performance specification.

The system will write a record to SYS1.LOGREC describing the error, insert "worst case" substitute values in place of the lost address space characteristics in case the STAE routine or the terminated task requests retry, and terminate the controlling task of the address space or system component affected by the data loss.

Programmer Response: Resubmit the job or restart the terminated function.

Problem Determination: Table I, items 1, 2, 4, 5a, 18, 29.

260 Explanation: The STAX SVC has detected invalid user parameters.

System Action: One of the following occurs:

- If one exists, the user's recovery routine receives control.
- The user's TCB is abnormally terminated.

Programmer Response: The issuer of the STAX can do one of the following:

- Continue processing without the STAX environment.
- Correct the parameters and reissue STAX.

These actions are only possible if the caller has an error recovery exit that will receive control as a result of the ABEND.

Note: Examples of conditions that could cause the ABEND are:

- Input or output buffer size greater than 32K.
- Invalid input buffer address.
- Both DEFER = YES and DEFER = NO specified.

269 Explanation: An error occurred during the execution of IMGLIB which could not be attributed to invalid input to IMGLIB. Register 15 contains a return code that indicates whether a dump was taken to the SYS1.DUMP data set.

System Action: The IMGLIB task recovery routine has attempted to take a storage dump to the SYS1.DUMP data set; the result of the dump attempt is indicated by the return code in register 15. See message IEC920I for a complete description of the possible return codes and their meanings. Additional diagnostic information was written to the SYS1.LOGREC data set.

Programmer Response: Make sure that the IMGLIB macro instruction is correctly coded.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 18, 29.

26D Explanation: An error was detected in communications between MF/1 and the system resources manager while attempting to initialize, collect, or reinitialize workload activity measurements. Register 15 contains the return code from the system resources manager in the following byte location, depending on the function attempted by MF/1:

Byte	Attempted Function
0	N A
1	Reinitialization of workload activity measurement collection after a change in the installation performance specification (IPS).
2	Collection of workload activity measurements.
3	Initialization of workload activity measurements.

System Action: All MF/1 measurement collection is terminated. As a result of this error, reinstatement of MF/1 may be attempted. If the reinstatement is successful, MF/1 continues under the control of the original options. If the reinstatement fails subsequently, MF/1 is terminated.

Programmer Response: If the error persists, obtain a dump.

Problem Determination: Table I, items 4, 5a, 16, 18, 29.

271 Explanation: PGFIX or PGFREE requested and call is not authorized.

System Action: The requested service is denied.

Programmer Response: Correct the user's program or obtain proper authorization from installation management.

Problem Determination: Table I, items 1, 5a, 16, 25c, 29.

279 Explanation: An error was discovered in the parameters associated with an I/O request. The error was discovered during I/O request termination processing. At the time of abnormal termination, register 3 contains a pointer to the IOMB and register 2 contains a reason code as follows:

- 4 Invalid BUFC. The virtual storage originally assigned to a BUFC no longer belongs to the user.
- 20 An invalid buffer address was discovered while attempting I/O (a protection check occurred).

System Action: Processing continues.

Programmer Response: Probable user error. Make sure that the problem program did not incorrectly modify the control block structure or associated parameters. After making necessary corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 2, 4, 5a, 18, 29.

2F3 Explanation: The job was running when a system failure occurred. A system restart was performed; a system job queue entry for the job existed at the time of failure.

Programmer Response: If results of the job are unsatisfactory, resubmit the job or job steps, as desired.

2FB Explanation: The JES3 address space has abnormally terminated. There are two environments in which this error may occur:

- A critical error has occurred early in JES3 initialization or late in JES3 termination. The JES3 ESTAE has not yet been set, and no JES3 formatted ABEND dump is available.
- Once JES3 initialization has completed up to the point where the JES3 ESTAE exit routine (IATABMN) has successfully been established, this ABEND code is used by the failsoft monitor (IATABMN) to return to the ESTAE exit level in order to be able to issue a SETRP macro instruction.

One of the reasons to return to the ESTAE exit is to produce an MVS dump, which will therefore always appear as a 2FB ABEND, regardless of the original ABEND code. The original ABEND code is shown in the failure logout (IAT3713 messages to the operator) and in the JES3 formatted dump. The occurrence of 2FB dump by itself does not tell whether the failing JES3 function could recover or had to be terminated.

(Note: An OS/MVS dump with an ABEND code of 2FB means that IATABMN or a routine employed by IATABMN failed, and thereby produced that ABEND code. JES3 was terminated as a result of that.)

System Action: For the first explanation above, message IAT3702 is written to the operator and to the (JES3 initialization) specified dump data set. This message details certain critical debugging information that is needed in analyzing the problem. An ABEND dump of the type specified in the JES3 initialization deck is taken.

Operator/Programmer Response: For the first explanation above, refer to the explanation of the indicated IAT3nnn message for information on the cause of the error and the necessary remedial action.

For the second explanation above, the ABEND dump that is produced should be reviewed and analyzed to determine the cause of the error.

Problem Determination: Table I, items 2, 5, 16. Table III, items 4, 5, 6, 20.

2FC Explanation: An error occurred during the execution of the I/O first level interrupt handler. In an attempt to recover the system, the supervisory control program has abnormally terminated the task that took the I/O interrupt.

System Action: The active task abnormally terminated.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 16, 23, 29.

300 Explanation: An error was detected when an I/O operation was requested; the storage protection key of the data extent block was not zero or the DEB validity check routine IFGDEBCK returned to EXCP with a nonzero return code.

System Action: The task is abnormally terminated.

Programmer Response: Probable user error. Verify that the data control block (DCB) contains the address of the DEB. After making corrections, execute the job step again.

If an abnormal termination dump is available, the TCB field TCBEXCPD (at offset C0) points to the EXCP problem determination area. The items in the problem determination area of greatest interest to you are:

- Offset 10 contains a copy of the registers when EXCP determined the error condition.
- Offset 50 contains the contents of the request queue element (RQE) if allocated, when the program check occurred.

Problem Determination: Table I, items 1, 3, 5b, 15, 19, 29.

301 Explanation: The error occurred during execution of a WAIT macro instruction.

The macro instruction specified an event control block (ECB) whose wait flag was already on. This indicated that a previous WAIT macro instruction was already waiting for posting of the event control block.

Programmer Response: Probable user error. Change the problem program to eliminate a double wait on a single event. If no double wait is found, make sure that the event control block was not incorrectly modified by the program. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

304 Explanation: Cross Memory POST asynchronous processing has failed. This completion code is issued by PRTOERTN, the Cross Memory POST asynchronous error exit routine in module IEAVGPRR (the GETPART/FREPART FRR).

System Action: The requestor is terminated.

Programmer Response: Check for a valid ECB in the JSCB of the task requesting the V = R region.

Problem Determination: Table I, items 5a, 11, 16, 29.

305 Explanation: The error occurred during execution of a FREEMAIN macro instruction:

- The specified subpool could not be found.
- The SP parameter was specified, but the virtual storage area to be released was not within the subpool specified.
- The SP parameter was not specified, but the virtual storage area to be released was not within subpool zero.
- The SP parameter was specified correctly, but the boundaries of the the storage area to be freed were not completely described by a descriptor queue element (DQE).

System Action: The task is terminated.

Programmer Response: Probable user error. Determine if the A operand and the LV operand specify an area within the subpool. If the area as specified is within the subpool, check for program errors that incorrectly modified the FREEMAIN macro expansion. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

306 Explanation: The error occurred during execution of the LINK, XCTL, ATTACH, or LOAD service routines.

The authorized routine requested a module which could not be found on an authorized library, but a copy of the module may have been found on a nonauthorized library.

The contents of register 15 indicate the nature of the error:

Reg. 15

In Hex.	Meaning
04	The requested program was not found in the indicated source (private library, job library, or link library).
08	An uncorrectable I/O error occurred when the control program attempted to search the directory of the library containing the module.
0C	The module could not be found on the LPA or in the LPA directory or an authorized library.

Programmer Response: Probable user error. If the requested module could not be found, make sure the module exists on a system or user-defined authorized library. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 22, 25c, 29.

30A *Explanation:* The error occurred during execution of an R-form FREEMAIN macro instruction:

- A FREEMAIN for an entire subpool was requested (register 1 was zero) but the length in register 0 was not set to zero.
- The specified subpool could not be found.
- The SP parameter was specified, but the virtual storage area to be released was not within the subpool specified.
- The SP parameter was not specified, but the virtual storage area to be released was not within subpool zero.
- The SP parameter was specified correctly, but the boundaries of the storage area to be freed were not completely described by a descriptor queue element (DQE).

System Action: The task is terminated.

Programmer Response: Probable user error. Determine if the A operand and LV operand specify an area within the subpool. If so, check for program errors that incorrectly modified the FREEMAIN macro expansion. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

30E *Explanation:* The error occurred during the execution of the SPIE macro instruction.

- An unauthorized program attempted to specify program interruption code 17.
- SPIE caller in supervisor state (SPIE must be issued in problem state).
- SPIE caller's PSW key does not match the caller's TCB key.

Programmer Response: Probable user error. For the first case, recode the macro instruction to delete the specification of interrupt code 17, or contact the system programmer to have authorization assigned to your program through the authorized program facility (APF). For the second case, make sure SPIE was issued in problem state and in the third case, make sure the PSW key matches the TCB key. Then execute the job step again.

Problem Determination: Table I, items 1, 5a, 15, 16, 19, 29.

- 313 *Explanation:* The error occurred during execution of an OPEN macro instruction for a data set on a direct access device. This system completion code is accompanied by message IEC144I. Refer to the explanation of message IEC144I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC144I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

- 314 *Explanation:* The error occurred during the execution of a CLOSE macro instruction for a data set on a direct access device. This system completion code is accompanied by message IEC211I. Refer to the explanation of message IEC211I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC211I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

- 315 *Explanation:* An error occurred during the execution of SVC 21 (STOW) which could not be attributed to invalid user input. This completion code is accompanied by message IEC911I. Refer to the explanation of message IEC911I for complete information about the task that was terminated and for an explanation of the return code in register 15.

System Action: The STOW task recovery routine has been invoked. Low core and the caller's region have been dumped to the SYS1.DUMP data set. The caller's input registers 0 and 1, and his DCB have been included in a software error record written to the SYS1.LOGREC data set.

Programmer Response: Make sure that the STOW macro instruction is correctly coded, and that the parameter list and DCB involved are not modified by your program during the execution of SVC 21.

Problem Determination: Table I, items 1, 2, 3, 7ab, 11, 13, 15, 18, 29.

- 317 *Explanation:* The error occurred during execution of a BSAM CLOSE macro instruction with a TYPE = T operand for a data set on a direct access device. This system completion code is accompanied by message IEC220I. Refer to the explanation of message IEC220I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC220I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

- 322 *Explanation:* Execution of a job, job step, or cataloged procedure step took longer than the time specified in:

- The TIME parameter of the EXEC or JOB statement.
- The standard time limit specified in the job entry subsystem.

System Action: The system abnormally terminated the job, job step, procedure, or procedure step.

Programmer Response: Check for program errors, such as endless loops, that would cause the job step, procedure, or procedure step to take too long. Correct any such errors. If no errors are found, specify a longer time in the TIME parameter. Then execute the job again.

Problem Determination: Table I, items 1, 5a, 7b, 26d, 29.

- 328 *Explanation:* The error was detected during execution of an EXTRACT macro instruction.

The task control block (TCB) specified in the second operand of the macro instruction was not for a subtask of the task issuing the EXTRACT macro instruction.

Programmer Response: Probable user error. Change the EXTRACT macro instruction to specify a task control block for a subtask. If the macro instruction was specified correctly, check for program errors that incorrectly modified the EXTRACT macro expansion. After making corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

- 32D *Explanation:* The error occurred during execution of an overlay program.

A record of an incorrect length was found or an uncorrectable input/output error occurred in loading a segment from the library.

Programmer Response: Link-edit the program again, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 9, 29.

- 330 *Explanation:* An unauthorized task attempted to use authorized options of the DEQ macro instruction.

Programmer Response: Probable user error. Correct the macro instruction; then recompile and run the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

- 335 *Explanation:* SVC 35, which obtains and releases exclusive control of a resource associated with a BDAM data set, found that the block for which acquisition or release of exclusive control was requested was not in the data set.

Programmer Response: If the RELEX macro was issued the user should ensure that the BLKREF address supplied in the RELEX macro points to a valid address within the data set described by the input DCB. Make sure also that the address format is compatible with the addressing scheme specified in the DCBOPTCD field of the DCB. If the RELEX macro was not issued, the block ID was taken from the IOBSEEK field, or in the case of write-add requests, the IOBDNCRF field. These addresses are derived from conversion of the block ID pointed to by the DECRECPT field of the DECB. Make sure that this address is correct and that the format of the block ID is compatible with that specified in the DCBOPTCD field of the DCB and is left-aligned.

Problem Determination: Table I, items 5b, 16, 25a, 29.

- 337 *Explanation:* The error occurred when the end of a data set was reached. This system completion code is accompanied by message IEC024I. Refer to the explanation of message IEC024I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC024I.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 21, 29.

338 *Explanation:* An unauthorized task attempted to use authorized options of the ENQ macro instruction.

Programmer Response: Probable user error. Correct the macro instruction; then recompile and run the job step again.

339 *Explanation:* SVC 57, which frees a buffer or extends the unscheduled list (via a FREEDBUF macro issued either by the user or by the system), found that the DEB pointed to by the input DCB (DCBDEBAD) was either not on any DEB chain associated with that job step TCB or did not point back to that DCB.

Programmer Response: Make sure that the input DCB address is correct and that the DCBDEBAD field of the input DCB has not been overlaid.

Problem Determination: Table I, items 5b, 16, 29.

33E *Explanation:* A DETACH macro instruction specifying the STAE = YES operand has been issued by the originating task, but the specified subtask has not completed execution.

System Action: The subtask is abnormally terminated. If the STAE macro instruction was issued by the subtask, the specified exit routine will be given control during abnormal termination processing. However, if the STAE exit routine specified a retry routine, the retry routine will not be given control.

Programmer Response: This may or may not be an error, depending on the programmer's intent. If the subtask should complete processing before it is detached, synchronization should be achieved by use of the ECB or EXTR operand on the ATTACH macro instruction that creates the subtask.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

344 *Explanation:* The error occurred during the execution of SYNADAF, where it was determined that the DCB address was invalid.

Programmer Response: Probable user error. Register 15 contains the DCB address in error. For BDAM, BPAM, QSAM, BISAM, and QISAM, the DCB address should be passed to SYNADAF as the PARM1 operand on the SYNADAF macro instruction. (For BDAM, BPAM, BSAM, and QSAM, the DCB address is in register 1 on entry to the user's SYNAD routine.) For EXCP access method, verify that the IOBDCBPT field contains the correct DCB address. Correct the error and rerun the job.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

351 *Explanation:* An error was detected during the execution of SETPRT which could not be attributed to invalid macro instruction invocation or invalid control blocks. This system completion code is accompanied by message IEC918I. Refer to the explanation of message IEC918I for complete information about the task that was terminated and for an explanation of the return code in register 15.

Programmer Response: Make sure that the SETPRT macro instruction is correctly coded, and that the parameter list and DCB involved are not modified by your program during the execution of SVC 81.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 18, 29.

378 *Explanation:* The error occurred during execution of an RC or RU form FREEMAIN macro instruction:

- A FREEMAIN for an entire subpool was requested (register 1 was zero) but the length in register 0 was not set to zero.
- The specified subpool could not be found.

- The SP parameter was specified, but the virtual storage area to be released was not within the subpool specified.
- The SP parameter was not specified, but the virtual storage area to be released was not within subpool zero.
- The SP parameter was specified correctly, but the boundaries of the storage area to be freed were not completely described by the descriptor queue element (DQE).

System Action: The task is terminated.

Programmer Response: Probable user error. Determine if the A operand and LV operand specify an area within the subpool. If the area as specified is within the subpool, check for program errors that incorrectly modified the FREEMAIN macro expansion. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

37A *Explanation:* The error occurred during the execution of an EVENTS macro instruction. The control program found that the EVENTS table specified on the EVENTS macro was currently being waited on.

Programmer Response: Probable user error. Make sure that only one task can wait on the EVENTS table in question at one time. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

37D *Explanation:* The error occurred during the execution of an EVENTS macro instruction. The control program found that the EVENTS table specified on the EVENTS macro was currently being waited on.

Programmer Response: Probable user error. Make sure that only one task can wait on the EVENTS table in question at one time. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

3FB *Explanation:* Sufficient storage could not be obtained in subpool 241 to build a DSB or to create a RAB.

System Action: The user address space is terminated.

Operator Response: None.

Programmer Response: Take the problem to a system programmer.

Problem Determination: Table I, item 5A. The problem may not recur.

37C *Explanation:* An error occurred during the execution of the EXT first level interrupt handler. In an attempt to recover the system, the supervisory control program has abnormally terminated the task that took the EXT interrupt.

System Action: The active task is abnormally terminated.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 16, 23, 29.

400 *Explanation:* The DCB in the DEB does not equal the DCB address in the IOB.

System Action: The task is abnormally terminated.

Programmer Response: Probable user error. Check the control blocks and rerun the job.

In the abnormal termination dump, the TCB field TCBEXCPD (at offset C0) points to the EXCP problem determination area.

The items in the problem determination area of greatest interest to you are:

- Offset 10 contains a copy of the registers when EXCP determined the error condition.
- Offset 50 contains the contents of the request queue element (RQE) if allocated, when EXCP determined the error condition.

After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

402 *Explanation:* The error occurred during execution of a POST macro instruction. The control program found an invalid EVENTS Table address in the three low-order bytes of the extended format EVENT Control Block (ECB) specified.

The EVENTS table address is placed in the ECB by the EVENTS macro instruction prior to the completion of the events associated with the ECB. This address must remain in the ECB until a POST macro instruction places a completion code in the ECB.

Programmer Response: Probable user error. Make sure an EVENTS macro was issued to construct an EVENTS table, and that an EVENTS macro was issued to initialize the ECB in question. In addition, make sure that the contents of the ECB were not modified after it was initialized as an extended format ECB and before the POST macro instruction was issued. Correct the error and execute the jobstep again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

406 *Explanation:* The error occurred during execution of a LINK, ATTACH, or XCTL macro instruction.

The requested program was marked by the linkage editor as "only loadable." The program was produced by a linkage editor execution for which the EXEC statement contained OL in the PARM parameter field.

Programmer Response: Probable user error. Rewrite the problem program so that it specifies only loading, but not execution, of the "only loadable" program. Then recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

40A *Explanation:* The error was detected during execution of an R-form FREEMAIN macro instruction:

- The macro instruction specified the release of all subpool zero storage. The entire subpool zero cannot be released by problem programs, that is, programs with storage protection keys other than zero.
- An authorized program specified that all of one of the following subpools was to be freed:
SQA
CSA
LSQA (subpool 254 or 255)

An invalid subpool (subpools 128 to 228, 232, 238, etc.)

System Action: The task is terminated.

Programmer Response: Probable user error. If the FREEMAIN macro instruction was intended to release subpool zero, remove it from the program. The control program automatically releases subpool zero when a job step terminates. If the FREEMAIN macro instruction was not intended to release subpool zero, correct the macro instruction or program errors that incorrectly modified it.

Storage in SQA, CSA, and LSQA (subpools 254 and 255) cannot be freed as an entire subpool but must be freed by individual explicit requests. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

40D *Explanation:* This completion code is found only in ASCBs. Because of recursive errors trying to terminate a task it became necessary to terminate the memory.

System Action: The RTM attempts to terminate the address space. A dump may have been taken to the SYS1.DUMP data set.

Programmer Response: Correct the original error.

Problem Determination: Table I, items 1, 5, 11, 16, 19, 29.

413 *Explanation:* The error occurred during execution of an OPEN macro instruction for a data set on magnetic tape or on a direct access device. This system completion code is accompanied by message IEC145I. Refer to the explanation of message IEC145I for complete information about the task that was terminated and for an

explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC145I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

414 *Explanation:* The error occurred during execution of a CLOSE macro instruction for a data set on a direct access device. This system completion code is accompanied by message IEC212I. Refer to the explanation of message IEC212I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC212I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

417 *Explanation:* The error occurred during execution of a BSAM CLOSE macro instruction with a TYPE = T operand for a data set on a direct access device. This system completion code is accompanied by message IEC221I. Refer to the explanation of message IEC221I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC221I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

42A *Explanation:* The error was detected during execution of an ATTACH macro instruction.

The ECB operand specified an invalid address for the event control block (ECB) to be posted when the subtask terminates. The address was invalid for one of the following reasons:

- It was not on a fullword boundary.
- The addressed virtual storage is not allocated, or the storage key does not match the protection key of the issuer of the ATTACH.

Programmer Response: Probable user error. Change the ATTACH macro instruction to specify the correct ECB, and ensure that the specification was not incorrectly modified by the problem program. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

430 *Explanation:* The error occurred during execution of a DEQ macro instruction.

The control program found that the parameter list created from the macro instruction was invalid.

Programmer Response: Probable user error. Correct the DEQ macro instruction specification or the program errors that incorrectly modified the parameter list. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

435 *Explanation:* SVC 53, which obtains and releases exclusive control of a resource associated with a BDAM data set, found that the DEB pointed to by the input DCB (DCBDEBAD) was either not on any DEB chain associated with the job step TCB or did not point back to that DCB.

Programmer Response: Make sure that the input DCB address is correct and that the DCBDEBAD field of the input DCB has not been overlaid.

Problem Determination: Table I, items 5b, 16, 29.

437 Explanation: The error occurred at an end-of-volume. This system completion code is accompanied by message IEC025I. Refer to the explanation of message IEC025I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC025I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

438 Explanation: The error occurred during execution of an ENQ macro instruction.

The control program found that the parameter list created from the macro instruction was invalid.

Programmer Response: Probable user error. Correct the specification of the macro instruction or the program errors that incorrectly modified the parameter list. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

43E Explanation: The ECB address specified with the ECB parameter on the ATTACH macro instruction which created a task was not valid at the time of termination of the task.

System Action: The ECB is not posted. The originating task of the task having the invalid ECB address (which address is contained in field TCBECEB of the subtask's TCB) is abnormally terminated.

Programmer Response: Probable user error. Determine if the area containing the ECB was freed before the subtask completed processing. Correct the error and run the job again.

Note: The ECB in question is specified at the time of the ATTACH macro, and is validity checked at that time. An invalid ECB at the time of DETACH of the subtask or at the end-of-task would probably occur through FREEMAIN of the storage containing the ECB.

Problem Determination: Table I, items 5a, 16, 19, 23, 29.

444 Explanation: The error occurred during the execution of SYNADAF, where it was determined that the DECB address was invalid.

Programmer Response: Probable user error. Register 15 contains the DECB address in error:

- For BDAM, BPAM, and BSAM, the DECB address should be passed to SYNADAF as the PARM2 operand on the macro instruction. For these access methods, the DECB address was in register 0 and entry to the user's SYNAD routine.
- For BISAM, the IOBECBPT field of the IOB in error should contain the DECB address. Make sure that the PARM2 operand on the SYNADAF macro instruction (the address of the first sense byte within the IOB) is correctly specified, and that the IOBECBPT has not been overlaid.

Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

451 Explanation: The error occurred during the execution of SETPRT. Either the DCB whose address was passed in the SETPRT parameter list is invalid, the DEB address located through the DCB was invalid, the DCB EXIT LIST address located through the DEB was invalid, or the IOBs located through the DCB are invalid. This system completion code is accompanied by message IEC918I. Refer to the explanation of message IEC918I for

complete information about the task that was terminated and for an explanation of the return code in register 15.

Programmer Response: Probable user error. For return code 04, make sure that the SETPRT macro instruction correctly specifies the address of an open DCB within your region. For return code 01, make sure that DCBEXLIST points to a valid exit list in your region. For return code 02, make sure that the DCB fields DCBIOBAD and DCBIOBA have not been overlaid since the DCB was opened. Make sure that the IOB or ICB link fields have not been overlaid. For return code 03, make sure that the DCB field DCBDEBAD has not been overlaid since the DCB was opened.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

478 Explanation: The error was detected during execution of an RC or RU form FREEMAIN macro instruction:

- The macro instruction specified the release of all subpool zero storage. The entire subpool zero cannot be released by problem programs, that is, programs with storage protection keys other than zero.
- An authorized program specified that all of one of the following subpools was to be freed:

SQA

CSA

LSQA (subpool 254 or 255)

An invalid subpool (subpool 128 to 228, 232, 238, etc.)

System Action: The task is terminated.

Programmer Response: Probable user error. If the FREEMAIN macro instruction was intended to release subpool zero, remove it from the program. The control program automatically releases subpool zero when a job step terminates. If the FREEMAIN macro instruction was not intended to release subpool zero, correct the macro instruction or program errors that incorrectly modified it.

Storage in SQA, CSA, and LSQA (subpool 254 and 255) cannot be freed as an entire subpool but must be freed by individual explicit requests. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

47A Explanation: The error occurred during execution of an EVENTS macro instruction. The control program found that an incorrect number of entries was specified on the request to create an EVENTS table. The number of entries must be from 1 to 32,767.

Programmer Response: Probable user error. Make sure the number of entries specified on the ENTRIES = operand of the EVENTS macro is from 1 to 32,767.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

47D Explanation: The error occurred during execution of an EVENTS macro instruction. The control program found that the address specified on the LAST = parameter of the EVENTS macro was incorrect.

The LAST specification must be an address between the first and last valid entries in the EVENTS table in question.

Programmer Response: Probable user error. Make sure that the LAST address is for a valid table entry which has not been previously purged from the EVENTS table.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

4FB *Explanation:* One of the following error conditions occurred:

- Sufficient storage could not be obtained in subpool 241 for SSISERV.
- Sufficient storage could not be obtained in subpool 230 for user address space buffers.
- An error occurred while processing TQE for additional track groups.

System Action: The user address space is terminated.

Operator Response: None.

Programmer Response: Take the problem to a system programmer.

Problem Determination: Table I, item 5A. Problem may not recur.

4FC *Explanation:* An error occurred during the execution of the PC first level interrupt handler. In an attempt to recover the system, the supervisory control program has abnormally terminated the task that suffered the program check.

System Action: The active task abnormally terminates.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 16, 23, 29.

500 *Explanation:* The UCB address found in the DEB is invalid.

System Action: The task is abnormally terminated.

Programmer Response: Usually not a programmer error.

Rerun the job requesting an abnormal termination dump before calling the system programmer.

In the abnormal termination dump, the TCB field TCBEPCD (at offset C0) points to the EXCP problem determination area. The items in the problem determination area of greatest interest to you are:

- Offset 10 contains a copy of the registers when the program check occurred.
- Offset 50 contains the contents of the request queue element (RQE) if allocated, when the program check occurred.

After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

502 *Explanation:* The error occurred during execution of a POST macro instruction. The control program found that the EVENTS table specified in the ECB had no available entries to contain the POSTed ECB address.

Programmer Response: Probable user error. Make sure that the EVENTS table associated with the ECB in question is large enough to contain entries for all ECBs which can be posted to it. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

504 *Explanation:* The error was detected during execution of a GETMAIN macro instruction that requested allocation of one or more areas of virtual storage. The macro instruction contained an LA operand (address of a list of lengths) and an A operand (address of a list of beginning addresses for the areas).

The length list and the address list occupied overlapping storage locations.

System Action: The task is terminated.

Programmer Response: Probable user error. Correct the macro instruction or program errors that incorrectly modified the parameter lists. Then execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

505 *Explanation:* The error was detected during execution of a FREEMAIN macro instruction that requested release of one or more areas of virtual storage. The macro instruction contained an LA operand (address of a list of lengths) and an A operand (address of a list of beginning addresses for the areas).

The length list and the address list occupied overlapping storage locations.

System Action: The task is terminated.

Programmer Response: Probable user error. Correct the macro instruction or program errors that incorrectly modified the parameter lists. Then execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

506 *Explanation:* The error occurred during execution of a LINK, LOAD, ATTACH, or XCTL macro instruction in overlay program.

If the requested program had been loaded, not enough virtual storage would have remained for the overlay supervisor.

Programmer Response: Probable user error. Reduce the size of the entire program or of the overlay segment. If this is not possible, change the program from an overlay program to a dynamically loaded program. Then recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

Table II, Format 1: trace option - TRACE = SYS.

513 *Explanation:* The error occurred during execution of an OPEN macro instruction for a data set on magnetic tape. This system completion code is accompanied by message IEC146I. Refer to the explanation of message IEC146I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC146I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

522 *Explanation:* All of the tasks in a job step were in an SVC wait state for the time specified in the JWT parameter.

The event control block (ECB) specified in the wait request was never posted. This could be the result of waiting on the wrong ECB or not posting the correct ECB.

Programmer Response: Correct any errors and execute the job step again. If no errors are found and the wait is expected for that particular job step, specify TIME = 1440 on the EXEC statement to bypass all job step timing.

Problem Determination: Table I, items 7ab, 29.

52A *Explanation:* The error occurred during the execution of an ATTACH macro instruction. Although the STAI operand was not specified in this macro instruction, it was specified for an antecedent task in the subtask queue for the job step. There is insufficient LSQA storage to copy the necessary STAI information for the subtask specified by this ATTACH macro instruction.

System Action: The subtask is not attached, and the task that issued the ATTACH macro instruction is abnormally terminated.

Programmer Response: Notify the system programmer at the installation and resubmit the job.

Problem Determination: Table I, items 1, 2, 5a, 7a, 29. If the problem persists in a TSO environment, have the terminal sheet available.

530 *Explanation:* The error was detected during execution of a DEQ macro instruction.

A DEQ macro instruction was issued in an asynchronous exit routine for a resource previously enqueued by another routine in the same task. However, the task had not yet received control of the resource.

Programmer Response: Probable user error. Correct the program so that the DEQ macro instruction is issued only after the task has control of the resource. If possible, avoid issuing the DEQ macro instruction in the exit routine. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

535 *Explanation:* SVC 53, which obtains and releases exclusive control of a resource associated with a BDAM data set, issued a GETMAIN for storage to be used in its processing and found no storage was available.

Programmer Response: Rerun the job. If the problem continues, storage may have to be freed by others before the exclusive control function is used.

Problem Determination: Table I, items 3, 4, 5a, 13, 16, 29.

- 53E *Explanation:* An error occurred during end-of-task processing before an ECB for the terminating task could be posted, or before an end-of-task exit routine could be scheduled, or before it was determined that the task had neither an ECB nor an end-of-task exit routine. The task has an end-of-task ECB if the ECB parameter was specified on the ATTACH macro instruction which created the task, and it has an end-of-task exit routine if the EXTR parameter was specified on the ATTACH macro.

System Action: The originating task for the task which suffered the error is abnormally terminated.

Programmer Response: Run the job again.

Problem Determination: Table I, items 5a, 16, 29.

- 544 *Explanation:* The error occurred during the execution of SYNADAF, where it was determined that the IOB address was invalid.

System Action: Register 15 contains the IOB address in error:

- For BDAM, BPAM, and BSAM, SYNADAF obtained the IOB address from the DECI0BPT field of the DECB; for these access methods, the DECB address was passed to SYNADAF as the PARM2 operand on the macro instruction, and was contained in register 0 on entry to the user's SYNAD routine. Verify that the PARM2 operand on the SYNADAF macro instruction was correctly specified and that the DECI0BPT field has not been overlaid.
- For QSAM, BISAM, and QISAM, SYNADAF received a pointer to the IOB as the PARM2 operand on the macro instruction. The address passed to SYNADAF should have been the address contained in register 0 on entry to the user's SYNAD routine. Verify that the PARM2 operand on the SYNADAF macro instruction was correctly coded.
- For the EXCP access method, verify that the PARM1 operand of the SYNADAF macro instruction specified the correct IOB address.

Programmer Response: Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

- 57D *Explanation:* The error occurred during execution of an EVENTS macro instruction.

The macro-expansion contained an invalid event control block (ECB) address.

Programmer Response: Probable user error. Make sure that the event control block address specified is a valid virtual storage address and that it was not incorrectly modified. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5b, 15, 19, 29.

- 5FB *Explanation:* The error occurred during the execution of an MVS-JES3 allocation subsystem interface routine. Register 15 contains a program-loaded code to uniquely identify the cause of the ABEND:

- 1 In common allocation, the number of units to be allocated by JES3 does not equal the number requested by MVS.
- 2 During deallocation processing, an ESTAE cannot be successfully issued.
- 3 Storage cannot be obtained for a dynamic allocation buffer.
- 4 Storage cannot be obtained for a change DDNAME buffer.
- 5 The address space ID associated with the request cannot be found in any of the address space headers.
- 6 A JST point error occurred during common allocation or deallocation.

For code 1, register 3 contains the number of units requested by MVS, and register 5 contains the number of units passed by JES3. For codes 2, 3, 4, and 6, register 3 contains the macro RTN code. For code 5, register 2 contains the address of the JSCB, and register 3 contains the address space ID.

System Action: The affected task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 1, 3, 5A, 15, 16, 29.

- 5FC *Explanation:* An error has occurred during the execution of the restart first level interrupt handler. In an attempt to recover the system, the supervisory control program has abnormally terminated the task that took the restart interrupt.

System Action: The active task is abnormally terminated.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 16, 23, 29.

- 604 *Explanation:* The error occurred during execution of a GETMAIN macro instruction:

- The address in the A or LA operand specified a location outside the private area assigned to the task or was not a multiple of 4.
- The address of the parameter list for the macro instruction was erroneous. This address was in register 1.

System Action: The task is terminated.

Programmer Response: Probable user error. Check for program errors that incorrectly modify the parameter list. Make sure that the address given by the A or LA operand was not incorrectly specified or modified. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

- 605 *Explanation:* The error occurred during execution of a FREEMAIN macro instruction:

- The address in the A or LA operand specified a location outside the private area assigned to the task or was not a multiple of 4.
- The address of the parameter list for the macro instruction was erroneous. This address was in register 1.

System Action: The task is terminated.

Programmer Response: Probable user error. Check for program errors that incorrectly modify the parameter list. Make sure that the address given by the A or LA operand was not incorrectly specified or modified. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

- 613 *Explanation:* The error occurred during execution of an OPEN macro instruction for a data set on magnetic tape. This system completion code is accompanied by message IEC147I. Refer to the explanation of message IEC147I for complete information about the job that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC147I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

614 *Explanation:* The error occurred during execution of a CLOSE macro instruction for a data set on a direct access device. This system completion code is accompanied by message IEC214I. Refer to the explanation of message IEC214I for complete information about the job that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC214I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

622 *Explanation:* Initiation of execution of a task entered from a TSO terminal was terminated for one of the following reasons:

1. The system encountered one of the following errors while constructing control blocks for TSO:
 - a. A multiple-step procedure was found.
 - b. The prompting task terminated abnormally.
2. The operator issued a MODIFY TCAM,TS = STOP command.
3. The terminal user signaled ATTN during LOGON scheduling.
4. The user submitting the job disconnected his terminal from the system.

System Action: In cases 1 and 2, the system issued terminal messages that describe the error conditions.

Programmer Response: In the first case, respond to the terminal messages that accompany this termination:

- For case 1a, specify a different procedure or consult your system programmer. Attempt to execute the job again.
- For case 1b, consult your system programmer.



In the second case, attempt to execute the job again when TSO is started.

In the third case, LOGON again; make sure that you do not signal ATTN inadvertently.

In the fourth case, attempt to execute the job again when the terminal is reconnected to the system.

Problem Determination: In all cases, have the terminal sheet available or record the current display on the graphics device before calling IBM for programming support.

630 Explanation: An out-of-storage condition occurred during the execution of a DEQ macro instruction.

Operator Response: Notify the system programmer and resubmit the job.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

637 Explanation: The error occurred at an end-of-volume for a data set on magnetic tape or an end-of-volume during concatenation. This system completion code is accompanied by message IEC026I. Refer to the explanation of message IEC026I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC026I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

638 Explanation: An out-of-storage condition occurred during the execution of an ENQ macro instruction.

Operator Response: Notify the system programmer and resubmit the job.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

644 Explanation: The error occurred during the execution of SYNADAF, where it was determined that the message buffer obtained in the user's region had been modified or freed.

Programmer Response: Probable user error. Register 15 contains the address of the message buffer area. Make sure that your program does not modify or free this area until SYNADAF execution is complete. Correct the error and rerun the job step.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

67D Explanation: The error occurred during execution of a EVENT macro instruction.

The macro instruction specified an event control block (ECB) whose wait flag was already on. This indicated that a previous EVENTS or WAIT macro instruction was already waiting for posting of the event control block.

Programmer: Probable user error. Change the problem program to eliminate a double wait on a single event. If no double wait is found, make sure that the event control block was not incorrectly modified by the program. Then execute the job step again.

Problem Determination: Table I, items 1, 2, 5a, 15, 19, 29.

6FB Explanation: An error condition occurred as indicated by the reason code in the high-order byte of register 15 and the return code in the low-order byte of register 15:

**Reason
Code**

- 0 The subsystem interface common services routine detected an error in its calling parameters or in the system status.
Return codes are:

- 24 The caller of SSICS is not in a system protect key 0-7.
- 28 The main processor specified by SYSID in the SSISERV macro is not defined.
- 32 An invalid combination of fields SELECBF, SELEXIT, SELBUFF was found in the IATYSEL control block for a WAIT or REPLY TYPE SSISERV request.
- 36 An error was detected attempting to write a staging area.
- 40 The primary and all secondary staging area extents have been exhausted.

- 1 An error return was taken from the JES3 macro IATXEGM or IATXBFM. The return code is:
08 GETMAIN/FREEMAIN failed.
- 2 An error return was taken from the MVS FREECELL macro. Return codes are:
08 Cell address is invalid.
12 No cell pool.
16 Invalid cell pool ID.
- 3 An error return was taken from the MVS BLDCPOOL macro. Return codes are:
04 GETMAIN failed.
08 Invalid cell pool ID.
12 Non-global subpool.
16 Cell size greater than pool size.
- 4 An error return was taken from the MVS GETCELL macro. Return codes are:
08 Chain pointers destroyed.
12 No cell pool.
16 Invalid cell pool ID.

6FC Explanation: An error has occurred while the program check first level interrupt handler was setting up for a SPIE exit routine. In an attempt to recover the system, the supervisory control program has abnormally terminated the task that attempted the SPIE exit.

System Action: The active task is abnormally terminated.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 16, 23, 29.

700 Explanation: A program check occurred in a supervisor service routine called by EXCP.

System Action: The task is abnormally terminated.

Programmer Response: Not a programmer error. Rerun the job requesting an abnormal termination dump before calling the system programmer. For the system programmer, the problem is most likely in one of the several service routines used by EXCP.

In the abnormal termination dump, the TCB field TCBEXCPD (at offset C0) points to the EXCP problem determination area. The items in the problem determination area of greatest interest to you are:

- Offset 10 contains a copy of the registers when the program check occurred.
- Offset 50 contains the contents of the request queue element (RQE) if allocated, when the program check occurred.
- Offset 4 contains a copy of the program status word (PSW) when the program check occurred.
- Offset E contains the interruption code when the program check occurred.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

704 Explanation: An uncorrectable machine, system, or indeterminate error occurred during execution of a GETMAIN macro instruction.

System Action: The requesting task is terminated.

Programmer Response: Rerun the job. If the error recurs, notify the system programmer or installation manager that this completion code has occurred.

Problem Determination: Table I, items 1, 2, 3, 5a, 16, 18, 29, or 30.

705 Explanation: An uncorrectable machine, system, or indeterminate error occurred during execution of a FREEMAIN macro instruction.

System Action: The requesting task is terminated.

Programmer Response: Rerun the job. If the error recurs, notify the system programmer or installation manager that this completion code has occurred.

Problem Determination: Table I, items 1, 2, 3, 5a, 16, 18, 29, or 30.

706 Explanation: The error occurred during execution of a LINK, XCTL, ATTACH, or LOAD macro instruction.

The requested load module was marked by the linkage editor as not executable.

Programmer Response: Probable user error. Correct the errors that were found by the linkage editor in the load module, have the module edited by the linkage editor again, recompile, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

70A Explanation: An uncorrectable machine, system, or indeterminate error has occurred during execution of an R-form GETMAIN or FREEMAIN macro instruction.

System Action: The requesting task is terminated.

Programmer Response: Rerun the job. If the error recurs, notify the system programmer or installation manager that this completion code has occurred.

Problem Determination: Table I, items 1, 2, 3, 5a, 16, 18, 29, or 30.

713 Explanation: The error occurred during execution of an OPEN macro instruction for a data set on magnetic tape or on a direct access device. This system completion



code is accompanied by message IEC148I. Refer to the explanation of message IEC148I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC148I.

Problem Determination: Table I, items 1, 2, 3, 5a, 15, 16, 29.

714 *Explanation:* The error occurred during execution of a CLOSE macro instruction for a data set on magnetic tape. This system completion code is accompanied by message IEC215I. Refer to the explanation of message IEC215I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC215I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

717 *Explanation:* The error occurred during execution of a BSAM CLOSE macro instruction with a TYPE = T operand for a data set on magnetic tape. This system completion code is accompanied by message IEC222I. Refer to the explanation of message IEC222I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC222I.

Problem Determination: 1, 3, 5a, 15, 16, 29.

722 *Explanation:* The output limit specified by the OUTLIM keyword on the SYSOUT DD statement was exceeded.

Programmer Response: Probable user error. Check for input/output loops and verify that the OUTLIM value does not conflict with any installation requirements. Otherwise, increase the OUTLIM value on the SYSOUT DD statement.

Note: In systems using JES2, the JES2 generation parameter & OUTPOPT specifies the action taken in the case of this ABEND. The & OUTPOPT parameter is described in OS/VS2 System Programming Library: System Generation Reference, GC26-3792.

Problem Determination: Table I, items 5a, 7ab, 29.

72A *Explanation:* The error occurred during the execution of an ATTACH macro instruction. The issuer of the macro instruction specified an invalid parameter address or invalid DE, if specified.

Programmer Response: Probable user error. Correct the parameter addresses insuring that they are valid virtual addresses or ensure that DE does not exceed the maximum size allowed. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 15, 16, 19, 29.

730 *Explanation:* An unexpected error occurred during the execution of a DEQ macro instruction.

System Action: Related information is recorded in SYS1.LOGREC.

Operator Response: Notify the system programmer of this ABEND code.

Problem Determination: Table I, items 1, 5a, 16, 18, 23, 29.

737 *Explanation:* The error occurred at an end-of-volume or during allocation of a secondary quantity of direct access storage as requested in the SPACE parameter of the DD

statement for the data set. This system completion code is accompanied by message IEC027I. Refer to the explanation of message IEC027I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC027I.

Problem Determination: If the data set does exist on the specified volumes and the problem recurs, see Table I, items 1, 3, 5a, 15, 16, 25b, 29.

738 *Explanation:* An unexpected error occurred during the execution of an ENQ macro instruction.

System Action: Related information is recorded in SYS1.LOGREC.

Operator Response: Notify the system programmer of this ABEND code.

Problem Determination: Table I, items 1, 5a, 16, 18, 23, 29.

744 *Explanation:* A program check occurred during the execution of SYNADAF or SYNADRLS. This error could not be attributed to invalid user input.

System Action: The SYNADAF recovery routine tried to take a dump of LSQA and the user's region. The dump header includes the job name, step name, and procedure step name. See message IEC907I to determine whether the dump attempt was successful. A software error record was written to SYS1.LOGREC.

Programmer Response: Rerun the job step.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 18, 29.

778 *Explanation:* An uncorrectable machine, system, or indeterminate error occurred during execution of an RC or RU form GETMAIN or FREEMAIN macro instruction.

System Action: The requesting task is terminated.

Programmer Response: Rerun the job. If the error recurs, notify the system programmer or installation manager that this completion code has occurred.

Problem Determination: Table I, items 1, 2, 3, 5a, 16, 18, 29, or 30.

77D *Explanation:* The error occurred during execution of an EVENTS macro instruction. The control program found that the input parameter flags contained an invalid combination.

Programmer Response: Probable user error. Verify the EVENTS macro input parameters and the contents of register 0 when the EVENTS service routine was invoked.

Problem Determination: Table I, items 1, 3, 5a, 19, 29.

7FB *Explanation:* A catastrophic error occurred during the execution of the MVS-JES3 dynamic device reconfiguration (DDR) subsystem interface routines.

System Action: The swap is terminated.

Operator Response: If the swap was operator-initiated, retry. If the swap was system-initiated, no action is required.

Programmer Response: None.

Problem Determination: Table I, items 5A, 16, 29.

800 *Explanation:* An error occurred when EXCP attempted to fix a page for this EXCP request.

System Action: The task is abnormally terminated.

Programmer Response: Rerun the job, requesting an abnormal termination dump before calling the system programmer. In the abnormal termination dump is available, the TCB field TCBEXCPD (at offset C0) points to the EXCP problem determination area. The items in the problem determination area of greatest interest to you are:

- Offset 10 contains a copy of the registers when EXCP determined the error condition.
- Offset 50 contains the contents of the request queue element (RQE) is allocated, when EXCP determined the error condition.

- Offset 1C0 contains the address of the first fix list.
- Offset 1C4 contains the first fix list.

After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

804 Explanation: The error occurred during execution of an EU, LU, or VU form GETMAIN macro instruction:

- More virtual storage was requested than was available.
- A negative length was specified (EU or VU form only).

System Action: The task is terminated.

Programmer Response: Probable user error. Make sure that sufficient storage is available when the storage request is executed. Then check for program errors that incorrectly modify the storage request. If necessary, change the problem program to request a smaller amount of storage. Then execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

806 Explanation: An error occurred during execution of a LINK, XCTL, ATTACH, or LOAD macro instruction, in which the EP or EPLOC operand was specified. The error was detected by the control program routine for the BLDL macro instruction.

The contents of register 15 indicate the nature of the error:

- 04 - The program whose entry point was specified in the EP or EPLOC operand was not found in the indicated library (private library, job library, or link library).
- 08 - An uncorrectable input/output error occurred when the BLDL control program routine attempted to search the directory of the library that contained the program whose entry point was specified in the EP or EPLOC operand. This can occur if the specified library is an uninitialized partitioned data set. At the time of abnormal termination, the contents of general purpose register 6 plus X'138' points to the address of the IOB ECB, the post code of which may prove helpful in isolating the problem. (For a discussion of the post codes, see *OS/VS2 I/O Supervisor Logic*, SY26-3823.) *Note:* The storage related to the IOB ECB may be free unless the dump is taken immediately after the ABEND macro instruction is issued.
- 0C - An SVC routine required by the system could not be found in the link pack area.

Programmer Response: If register 15 contains a X'04' it is a probable user error. Make sure that the requesting program was not incorrectly modified. Make sure that the source library was indicated correctly and that the indicated library does contain the requested program. Correct the error, and execute the job step again.

If register 15 contains X'0C', report this completion code to the system programmer.

Problem Determination: Table I, items 1, 5a, 16, 23, 25c, 29.

If register 15 contains a X'08', see Table II, Format 1: trace option - TRACE = IO.

80A Explanation: The error occurred during execution of an R-form GETMAIN macro instruction:

- More virtual storage was requested than was available.
- A negative length was specified.

System Action: The task is terminated.

Programmer Response: Probable user error. Make sure that sufficient storage is available when the storage request is executed. Then check for program errors that incorrectly modify the storage request. If necessary, change the problem program to request a smaller amount of storage. Then execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

813 Explanation: The error occurred during execution of an OPEN macro instruction for a data set on magnetic tape. This system completion code is accompanied by message IEC149I. Refer to the explanation of message IEC149I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC149I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

822 Explanation: A region required to run the step could not be obtained.

System Action: One of the following messages will be written to the programmer, depending upon whether the job was an ordinary job or a deferred checkpoint restart:

- IEF085I REGION UNAVAILABLE, ERROR CODE = cde
- IEF186I REGION UNAVAILABLE FOR RESTART, ERROR CODE = cde

Programmer Response: The action to be taken will depend upon which of the above messages is issued.

Problem Determination: Table I, items 1, 2, 3, 7a, 29.

82A Explanation: An invalid subpool id was specified by an authorized task with the NSHSPV or the NSHSPL parameter on the ATTACH macro instruction. Authorized here means system key, supervisor state, or APF authorized.

System Action: The new subtask is not created. The task which issued the ATTACH macro instruction is abnormally terminated.

Programmer Response: Change the invalid parameter (only subpool 235 or 237 may be specified with the NSHSPV or the NSHSPL parameter).

Problem Determination: Table I, items 5a, 16, 19, 29.

837 Explanation: The error occurred at an end-of-volume for a sequential data set. This system completion code is accompanied by message IEC028I. Refer to the explanation of message IEC028I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC028I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

838 Explanation: An ENQ macro instruction request was denied due to serious damage of the ENQ/DEQ control blocks.

Operator Response: Notify the system programmer of this ABEND code.

Programmer Response: Resubmit the job after the system has been reinstated.

Problem Determination: Table I, items 1, 5a, 16, 19, 29.

878 Explanation: The error occurred during execution of an RC or RU form GETMAIN macro instruction:

- More virtual storage was requested than was available.
- A negative length was specified.

System Action: The task is terminated.

Programmer Response: Probable user error. Make sure that sufficient storage is available when the storage request is executed. Then check for program errors that incorrectly modify the storage request. If necessary, change the problem

program to request a smaller amount of storage. Then execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

87D *Explanation:* The error occurred during execution of an EVENTS macro instruction. The control program found that the EVENTS table specified in the ECB had no available entries to contain the POSTed ECB address.

Programmer Response: Probable user error. Make sure that the EVENTS table associated with the ECB in question is large enough to contain entries for all ECBs which can be posted to it. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

8FB *Explanation:* An error has occurred in one of the interpreter service non-JES3 support areas. Register 15 contains a code to uniquely identify the cause of the ABEND:

- 4 A queue manager error has occurred in the reader/interpreter.
- 5 An error has occurred in the initiator queue manager interpreter interface (IATIIII). Register 9 points to a work area containing formatted messages.
- 6 An error has occurred in a VSAM POINT or WRITE operation out of an interpreter subtask.
- 7 An invalid DSB error occurred in VSAM initialization processing out of an interpreter subtask.
- 8 An error has occurred in VSAM buffer initialization out of an interpreter subtask.
- 15 An invalid return from the OS reader/interpreter has occurred. A dump is taken to SYS1.DUMP and the current task is detached.

System Action: The job is flushed from the system and processing continues.

Operator Response: Take the problem to a system programmer. Save all associated print output.

Programmer Response: Supply the system programmer with the dump, a listing of the JCL for the job, a listing of the JCL for JES3, and the JES3 initialization deck. If the return code is 5, the job should be rerun with the DEBUG=ALL option.

Problem Determination: None.

905 *Explanation:* The error occurred during execution of a FREEMAIN macro instruction.

The address of the storage area to be released was not on a doubleword boundary (a multiple of 8).

System Action: The task is terminated.

Programmer Response: Probable user error. Check the addresses specified for areas to be released. They may have been incorrectly specified or modified. After making corrections, execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

906 *Explanation:* The error occurred during execution of a LINK, LOAD, XCTL, and ATTACH. The maximum use count has been exceeded. This count is '7FFF' for OS/VS2, Release 2.

Programmer Response: Probable user error. Check for program errors, such as endless loops, that would cause macro instruction(s) executed too often. After making corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

90A *Explanation:* The error occurred during execution of an R-form FREEMAIN macro instruction.

The address of the storage area to be released was not on a doubleword boundary (a multiple of 8).

System Action: The task is terminated.

Programmer Response: Probable user error. Check the address specified for the area to be released. It may have been incorrectly specified or modified. Correct the error, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

913 *Explanation:* The error occurred during execution of an OPEN macro instruction. This system completion code is accompanied by message IEC150I. Refer to the explanation of message IEC150I for complete information about the task that was terminated and for an explanation of the return code in register 15.

Programmer Response: Respond as indicated in message IEC150I.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

922 *Explanation:* An ABEND, program check, depression of the RESTART key, or machine check took place with the initiator in control. The job being processed at the time received the completion code.

System Action: A record describing the error is written to SYS1.LOGREC unless the ABEND was an OPEN failure. A dump is taken to SYS1.DUMP when applicable.

Programmer Response: Resubmit the job.

Problem Determination: Table I, items 1, 2, 3, 7a, 16, 18, 29.

92A *Explanation:* The error occurred during the execution of an ATTACH macro instruction. An environmental error occurred which was not the result of any action on the part of the current task. The contents of register 15 indicate the specific cause of the error:

Register 15 Contents in Hexadecimal	Explanation
00	An error occurred in the ESTAE SVC issued to establish a recovery environment for ATTACH processing.
04	Storage in subpool 255 was not available for the new SVRB, SPQEs, and parameter save area.
08	An error occurred in SVC 60 (STAI/ESTAI) issued to propagate STAI/ESTAI SCBs from the current TCB to the new TCB, and to build a new SCB if STAI or ESTAI was specified on the ATTACH macro instruction. The SVC 60 issued was a STAI entry if the STAI keyword was specified on the ATTACH macro instruction; otherwise, it is an ESTAI entry.
0C	An error occurred when SETLOCK was entered to obtain the local lock.
10	An error occurred when SETLOCK was entered to release the local lock.

System Action: The new subtask is not created. The task which issued the ATTACH macro instruction is abnormally terminated.

Operator Response: Run the job again.

Problem Determination: Table I, items 5a, 16, 29.

937 *Explanation:* The error occurred at an end-of-volume for a checkpoint data set. This system completion code is accompanied by message IEC029I. Refer to the explanation of message IEC029I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC029I.

Problem Determination: Table I, items 1, 3, 4, 5a, 29.

978 *Explanation:* The error occurred during execution of an RC or RU form FREEMAIN macro instruction. The address of the storage area to be released was not on a doubleword boundary (a multiple of 8).

System Action: The task is terminated.

Programmer Response: Probable user error. Check the address specified for the area to be released. It may have been incorrectly specified or modified. Correct the error, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

A00 *Explanation:* A program check occurred in an appendage.

System Action: The task is abnormally terminated.

Programmer Response: Probably not a programmer error unless using EXCP for I/O operations. Rerun the job requesting an abnormal termination dump before calling the system programmer.

In the abnormal termination dump, the TCB field TCBEXCPD (at offset C0) points to the EXCP provided debugging area. The items in the debugging area of greatest interest to you are:

- Offset 2 contains a flag byte indicating where the error occurred.
- Offset 10 contains a copy of the registers when EXCP issued the ABEND macro.
- Offset 50 contains the contents of the request queue element (RQE), if allocated, for the I/O request being processed.

- Offset 4 contains a copy of the program status word (PSW) before RTM was entered.
 - Offset E contains the interruption code.
- After making corrections, execute the job step again.
Problem Determination: Table I, items 1, 3, 5a, 15, 19, 29.

A03 Explanation: The error occurred when a task attempted to terminate normally with a RETURN macro instruction or a branch to the return address in register 14. The task had initiated one or more subtask(s) that had not terminated.

Programmer Response: Probable user error. Change the program so that, before termination of the task, all its subtasks will terminate. A task can determine that its subtasks have terminated by specifying ECB operands in the ATTACH macro instructions that initiate the subtasks and then issuing WAIT macro instruction(s) that specify the event control blocks representing the subtask terminations.

If WAIT macro instruction(s) had been issued and had indicated that all subtasks had terminated, check for program errors that incorrectly modified the WAIT macro instructions or event control blocks.

After making corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

A05 Explanation: The error occurred during execution of a FREEMAIN macro instruction:

- The control program found that the address and length specifications in the release request defined an area to be freed that overlapped a free area in virtual storage. Specifications for free areas are contained in the free area queue, which is composed of queue elements defining each free area.
- Part of the area being freed is still fixed in real storage. Fixed storage blocks cannot be freed.

System Action: The task is terminated.

Programmer Response: Probable user error. Check for program errors that incorrectly modified the free area queue or the release request. Make sure the release request was correctly specified.

If storage is still fixed a PGFREE must be issued before it can be freed (FREEMAIN). The storage is probably still in use by an authorized function and should not be freed (FREEMAIN) at this time. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

A06 Explanation: The error was detected during execution of either a LINK, LOAD, XCTL or ATTACH macro instruction.

This macro instruction requested a serially reusable load module; however, a prior request for the same load module was already queued for the task issuing this macro instruction.

Programmer Response: Probable user error. Change the program to wait until the serially reusable load module is executed before issuing the LINK, LOAD, XCTL or ATTACH macro instruction for the load module. After making corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

AOA Explanation: The error occurred during execution of an R-form FREEMAIN macro instruction:

- The control program found that the address and length specifications in the release request defined an area to be freed that overlapped a free area in virtual storage. Specifications for free areas are contained in the free area

queue, which is composed of queue elements defining each free area.

- Part of the area being freed is still fixed in real storage. Fixed storage blocks cannot be freed.

System Action: The task is terminated. If the FREEMAIN macro instruction represents a FREEPART request, the current address space is terminated.

Programmer Response: Probable user error. Check for program errors that incorrectly modified the free area queue or the release request. Make sure the release request was correctly specified.

If storage is still fixed a PGFREE must be issued before it can be freed (FREEMAIN). The storage is probably still in use by an authorized function and should not be freed (FREEMAIN) at this time. Correct the error and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

A13 Explanation: The error occurred during execution of an OPEN macro instruction for a data set on magnetic tape. This system completion code is accompanied by message IEC151I. Refer to the explanation of message IEC151I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC151I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

A14 Explanation: The error occurred during execution of a CLOSE macro instruction for a data set on a direct access device. This system completion code is accompanied by message IEC216I. Refer to the explanation of message IEC216I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC216I.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

A23 Explanation: The error occurred during execution of an XMPOST macro instruction issued by the communications task. The ECB address specified was invalid.

Operator Response: Probable system error. Re-IPL the system and run the job again.

Problem Determination: Table I, items 2, 16, 29.

A37 Explanation: The error occurred during end-of-volume processing. This system completion code is accompanied by message IEC015I. Refer to the explanation of message IEC015I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC015I.

Problem Determination: Table I, items 1, 4, 5a, 15, 16, 29. Table II, format 3.

A78 Explanation: The error occurred during execution of an RC or RU form FREEMAIN macro instruction:

- The control program found that the address and length specifications in the release request defined an area to be freed that overlapped a free area in virtual storage. Specifications for free areas are contained in the free area queue, which is composed of queue elements defining each free area.

- Part of the area being freed is still fixed in real storage.
Fixed storage blocks cannot be freed.
System Action: The task is terminated.
Programmer Response: Probable user error. Check for program errors that incorrectly modified the free area queue or the release request. Make sure the release request was correctly specified.
If storage is still fixed a PGFREE must be issued before it can be freed (FREEMAIN). The storage is probably still in use by an authorized function and should not be freed (FREEMAIN) at this time. Correct the error and execute the job step again.
Problem Determination: Table I, items 1, 5a, 16, 23, 29.

B00 Explanation: Indeterminate error while in EXCP processing.
System Action: The task is abnormally terminated.
Programmer Response: Normally not a programmer error. Rerun the job requesting an abnormal termination dump before calling the system programmer.
Problem Determination: Table I, items 1, 3, 5b, 15, 19, 29.

B04 Explanation: The error occurred during execution of a GETMAIN macro instruction:

- A subpool number greater than 127 was specified by a problem program (a program not authorized to use valid subpool numbers greater than 127).
- An authorized program requested an invalid subpool.

System Action: The task is terminated.
Programmer Response: Probable user error. Make sure that the request was specified correctly and was not incorrectly modified. Correct the error, and execute the job step again.
Problem Determination: Table I, items 1, 5a, 16, 23, 29.

B05 Explanation: The error occurred during execution of a FREEMAIN macro instruction:

- A subpool number greater than 127 was specified by a problem program (a program not authorized to use valid subpool numbers greater than 127).
- An authorized program requested an invalid subpool.

System Action: The task is terminated.
Programmer Response: Probable user error. Make sure that the request was specified correctly and was not incorrectly modified. Correct the error, and execute the job step again.
Problem Determination: Table I, items 1, 5a, 16, 23, 29.

B06 Explanation: During input/output activity, a system error task operating in behalf of a user task was abnormally terminating. Rather than have the system error task fail, the supervisor reinstated the error task and abnormally terminated the user task.
Programmer Response: Retry the task.
Problem Determination: Table I, items 5a, 16, 23, 29.

BOA Explanation: The error occurred during execution of an R-form GETMAIN or FREEMAIN macro instruction:

- A subpool number greater than 127 was specified by a problem program (a program not authorized to use valid subpool numbers greater than 127).
- An authorized program requested an invalid subpool.

System Action: The task is terminated.
Programmer Response: Probable user error. Make sure that the request was specified correctly and was not incorrectly modified. Correct the error, and execute the job step again.
Problem Determination: Table I, items 1, 5a, 16, 23, 29.

B13 Explanation: The error occurred during execution of an OPEN macro instruction for a data set on a 1403 printer with the universal character set (UCS) special feature. This system completion code is accompanied by message IEC152I. Refer to the explanation of message IEC152I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.
Programmer Response: Respond as indicated for message IEC152I.
Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

B14 Explanation: The error occurred during execution of a CLOSE macro instruction for a partitioned data set opened for output to a member. This system completion code is accompanied by message IEC217I. Refer to the explanation of message IEC217I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.
Programmer Response: Respond as indicated for message IEC217I.
Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

B23 Explanation: The task issued a WTOR which was still unanswered when a communication task ABEND occurred.
Operator Response: Probable system error. Re-IPL the system and run the job again.
Problem Determination: Table I, items 2, 16, 29.

B37 Explanation: The error was detected by the end-of-volume routine. This system completion code is accompanied by message IEC030I. Refer to the explanation of message IEC030I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.
Programmer Response: Respond as indicated for message IEC030I.
Problem Determination: Table I, items 1, 3, 5a, 15, 16, 29.

B78 Explanation: The error occurred during execution of an RC or RU form GETMAIN or FREEMAIN macro instruction:

- A subpool number greater than 127 was specified by a problem program (a program not authorized to use valid subpool numbers greater than 127).
- An authorized program requested an invalid subpool.

System Action: The task is terminated.
Programmer Response: Probable user error. Make sure that the request was specified correctly and was not incorrectly modified. Correct the error, and execute the job step again.
Problem Determination: Table I, items 1, 5a, 16, 23, 29.

C03 Explanation: The error occurred when a task attempted to terminate normally with a RETURN macro instruction or a branch to the return address in register 14. The task had one or more data sets that had not been closed.

The control program received a non-zero return code from the Data Management Resource Manager, TASK CLOSE, indicating one of the following:

- A subroutine called by TASK CLOSE returned a non-zero return code to TASK CLOSE.

- TASK CLOSE could not successfully close one or more of the task's data sets that was still open at termination, because the data control block (DCB) for the data set had been invalidly modified. Examples of how the DCB could be invalidly modified are:

- A program containing an open DCB issued an XCTL macro instruction.
- A program freed virtual storage that contained an open DCB.
- The system program modified the DCB incorrectly.

Programmer Response: Probable user error. Correct the program error that incorrectly modified the data control block. After making the corrections, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

COD Explanation: A routine has found a condition that should not occur. For example, an invalid return code has been returned. This abnormal termination code may be used for entry into a recovery routine that will attempt retry.

System Action: A software error record is written to the SYS1.LOGREC data set and/or a dump is taken.

Programmer Response: Notify your IBM programming support representative.

Problem Determination: Table I, items 2, 4, 5a, 16, 18, 29.

C13 Explanation: The error occurred during execution of an OPEN macro instruction for a concatenated partitioned data set or a graphic device. This system completion code is accompanied by message IEC153I (or for graphics, message IEC157I). Refer to the explanation of message IEC153I (or message IEC157I) for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC153I (or message IEC157I).

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

C2D Explanation: The error occurred during execution of an overlay program. The control program found an invalid scatter record when attempting to load a segment of the overlay program.

Programmer Response: Link-edit the program again, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 9b, 29.

C37 Explanation: The error occurred when an input operation was requested. The data set was on a direct access device. This system completion code is accompanied by message IEC033I. Refer to the explanation of message IEC033I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC033I.

Problem Determination: Table I, items 1, 5a, 13, 25a, 29.

D05 Explanation: The error occurred during execution of a FREEMAIN macro instruction. A task invoked a system function which, in turn, issued a FREEMAIN macro instruction. However, the FREEMAIN macro instruction attempted to free local system queue area storage that was not owned by the task. For example, a task issues a CLOSE macro instruction for a data set that it does not

own. During execution of the CLOSE macro instruction, a FREEMAIN macro instruction is issued.

System Action: The task is terminated.

Programmer Response: Probable user error. Change the program ensuring that requests for system functions do not result in invalid FREEMAIN macro instruction being issued; then, rerun the job.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

D0A Explanation: The error occurred during execution of an R-form FREEMAIN macro instruction. A task invoked a system function which, in turn, issued a FREEMAIN macro instruction. However, the FREEMAIN macro instruction attempted to free local system queue area storage that was not owned by the task. For example, a task issues a CLOSE macro instruction for a data set that it does not own. During execution of the CLOSE macro instruction, a FREEMAIN macro instruction with an R operand is issued.

System Action: The task is terminated.

Programmer Response: Probable user error. Change the program ensuring that requests for system functions do not result in invalid FREEMAIN macro instructions being issued; then, rerun the job.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

D0D Explanation: An error occurred during abnormal termination of a subtask of the jobstep task. RTM2 (recovery-termination management) was reentered invalidly; therefore, the environment of the abnormal termination was altered to include all tasks in the jobstep.

Note: The original completion code is found in the SVRB of the original SVC 13 SVRB queued from the task which incurred the error.

System Action: RTM2 attempts to terminate the job step. A dump may have been taken to the SYSABEND to SYSUDUMP data set and may also been taken to the SYS1.DUMP data set.

Programmer Response: Determine the completion code for the original subtask and correct the error.

Problem Determination: Table I, items 1, 5, 11, 16, 19, 29.

D13 Explanation: The error occurred during execution of an OPEN macro instruction for a graphic data control block. This system completion code is usually accompanied by message IEC158I. Refer to the explanation of message IEC185I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC158I.

Problem Determination: Table I, items 1, 5a, 13, 23, 29.

D14 Explanation: The error occurred during execution of a CLOSE macro instruction for a graphic data control block. The graphic device to be closed was not opened by the closing task.

Programmer Response: Probable user error. Issue the CLOSE macro instruction within the same task that issues the OPEN macro instruction, or remove the invalid CLOSE macro instruction. Then execute the job step again.

Problem Determination: Table I, items 1, 3, 5a, 15, 29.

D23 Explanation: The error occurred during execution of a WTO or WTOR macro instruction for one of the following reasons:

- The parameter list supplied to the WTOR macro instruction does not begin on a fullword boundary.
- A WTOR/MLWTO parameter list was specified.
- A multiline WTO was specified and space was not available in subpool 229 for a workarea for SVC 35.
- The parameter list passed by the user does not reside in storage that is accessible by the user.
- Space was not available in subpool 231 for an ORE or WQE buffer.

Programmer Response: Probable user error. Correct the program issuing the WTO or WTOR macro instruction, recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

D2D Explanation: The error occurred during execution of an overlay program.

The control program found an invalid record type when attempting to load a segment of the overlay program.

Programmer Response: Link edit the program again, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 9, 29.

D37 Explanation: The error occurred when an output operation to a direct access device was requested. This system completion code is accompanied by message IEC0311. Refer to the explanation of message IEC0311 for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC0311.

Problem Determination: Table I, items 1, 3, 5a, 15, 16, 25b, 29.

D78 Explanation: The error occurred during execution of an RC or RU form FREEMAIN macro instruction. A task invoked a system function which, in turn, issued a FREEMAIN macro instruction. However, the FREEMAIN macro instruction attempted to free local system queue area storage that was not owned by the task. For example, a task issues a CLOSE macro instruction for a data set that it does not own. During execution of the CLOSE macro instruction, a FREEMAIN macro instruction with an RC or RU operand is issued.

System Action: The task is terminated.

Programmer Response: Probable user error. Change the program ensuring that requests for system functions do not result in invalid FREEMAIN macro instructions being issued; then, rerun the job.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

E03 Explanation: The error occurred when a task attempted to terminate normally with a RETURN macro instruction or a branch to the return address in register 14. The task is operating in must-complete status and did not reset must-complete.

System Action: The task is abnormally terminated.

Programmer Response: Probable user error. Ensure that each issuance of an ENQ, RESERVE or STATUS macro instruction requesting must-complete status is paired with a DEQ or STATUS macro instruction requesting 'reset must-complete'.

Problem Determination: Table I, items 1, 5a, 16, 19, 23, 29. Table II, Format 1, TRACE = SVC.

E13 Explanation: The error occurred during execution of an OPEN macro instruction for a graphic data control block.

This system completion code is accompanied by message IEC159I. Refer to the explanation of message IEC159I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC159I.

Problem Determination: Table I, items 1, 5a, 13, 23, 29.

E23 Explanation: The error occurred during processing of a WTOR macro instruction.

The address of the event control block (ECB), the address of the request block (RB) in the ECB, or of the virtual storage area for the reply was invalid.

Programmer Response: Probable user error. Correct the macro instruction or program errors that incorrectly modified the macro expansion. Recompile and execute the job step again.

Problem Determination: Table I, items 1, 5a, 16, 23, 29.

E2D Explanation: The error occurred during execution of an overlay program.

The control program found an invalid address when attempting to load a segment of the overlay program.

Programmer Response: Link edit the program again, and execute the job step again.

Problem Determination: Table I, items 1, 5a, 9, 29.

E37 Explanation: The error occurred when an output operation was requested. The data set was on a direct access or magnetic tape device. This system completion code is accompanied by message IEC032I. Refer to the explanation of message IEC032I for complete information about the task that was terminated and for an explanation of the return code (rc in the message text) in register 15.

Programmer Response: Respond as indicated for message IEC032I.

Problem Determination: Table I, items 1, 3, 5b, 15, 16, 29.

E82 Explanation: The error occurred when disabled code was executed, invoking an inactive SVC.

System Action: The task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 3, 4, 5a, 13, 16, 17a, 17b.

E83 Explanation: The error occurred when disabled code was executed, invoking an inactive SVC.

System Action: The task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 3, 4, 5a, 13, 16, 17a, 17b.

E84 Explanation: The error occurred when disabled code was executed, invoking an inactive SVC.

System Action: The task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 3, 4, 5a, 13, 16, 17a, 17b.

E85 Explanation: The error occurred when disabled code was executed, invoking an inactive SVC.

System Action: The task is terminated.

Programmer Response: None.

Problem Determination: Table I, items 2, 3, 4, 5a, 13, 16, 17a, 17b.

Fnn Explanation: One of the following occurred:

- The error occurred during execution of an invalid supervisor (SVC) instruction. The last 2 digits of this completion code are the operand of the supervisor call instruction in hexadecimal.
- If nn is 13, 14, 17, or 37, an OPEN/CLOSE/EOV problem determination routine failed to recognize the passed abnormal termination code. Register 12 contains the abnormal termination code.

Programmer Response: In the first case, there is a probable user error. Make sure that the supervisor call instruction was not incorrectly modified. Check the operand against the valid codes for the control program being used, and determine if the SVC that was issued had been generated into the system. Correct the error and execute the job step again. In the second case, see message IEC900I in the VS2 System Messages publication, GC38-1002.

Problem Determination: Table I, items 5a, 16, 23, 29.

Wait State Codes

Wait State Code	The wait state code is found in the program status word (PSW) when the computer is in wait state.
Program Producing Code	Input/output supervisor, IPL and NIP programs, machine-check handler, supervisor 3211 utility.
Audience and Where Produced	For operator: displayed in console lights.
Program Status Word Format	yyyyyyyyxxxxzzz yyyyyyy Left half of program status word. This half has two forms: FF0s0000 If the wait state code (zzz in the right half of program status word) is 000, no tasks are ready in the system. Otherwise, an error condition, indicated by zzz has occurred. 000s0000 System wait state caused by an error condition. In each of the above forms, s represents bits 12-15 (the CMWP bits). xxxxzzz Right half of program status word. The wait state code, zzz, indicates the error condition.
Comments	If the system enters a wait state during IPL execution and the explanation of the wait state resulted from an input/output error, the operator should display the contents of register 10 in the console lights. Register 10 will contain the unit address of the last device referenced in an input/output operation. Since this device could be the source of the error, the operator should, if possible, disable or demount the device before starting the system again.
Problem Determination	Refer to Tables I and II at the back of this publication for problem determination instructions.

001 Explanation: During execution of the IPL program a "not operational" condition code was produced in response to a Test I/O instruction that was issued to determine the current status of the volume containing the nucleus being loaded.

This wait state may result if the operator attempts to load (IPL) the system with the IPL volume on a device not supported for systems residence.

Operator Response: Probable user error. Ensure that the device on which the volume was mounted is ready. If the problem recurs, call IBM for programming support.

002 Explanation: During execution of the IPL program an input/output operation was not initiated; the channel status word (CSW) was stored; and the channel was not busy.

Operator Response: Probable hardware error. Start the system again. If the problem recurs, call IBM for hardware support.

003 Explanation: During execution of the IPL program, an input/output operation was not initiated, because a not operational response was received from an SIO instruction. The channel status word (CSW) was not stored, and the channel was not busy.

Operator Response: Probable hardware error. Start the system again.

Problem Determination: Table I, item 30.

004 Explanation: During execution of the IPL program an input/output operation was not initiated; the channel status word (CSW) was not stored and the channel was not busy following execution of a Test I/O instruction.

Operator Response: Probable hardware error. Start the system again. If the problem recurs, call IBM for hardware support.

005 Explanation: During execution of the IPL program an input/output interruption occurred because of a unit check.

The address of the channel command word (CCW) causing the original unit check was placed at hexadecimal location 4C. The first four sense bytes describing the unit check were placed at hexadecimal location 54.

The result of a sense operation to determine the cause of the unit check was not one of the following:

- No record found.
- File mask violation.
- End of cylinder.
- Track condition check.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, items 11, 17b, 30.

006 Explanation: During execution of the IPL program one or more of the following occurred:

- An interface control check.
- A channel control check.
- A channel data check.
- A program check.
- A channel chaining check.

Operator Response: Probable user error. Restart the system.

Problem Determination: Table I, items 11, 17b, 29.

007 Explanation: During execution of the nucleus initialization program (NIP), a console was not available.

Operator Response: Probable user error. Ensure that a console is available.

Problem Determination: Table I, items 17b, 29.

00A Explanation: This wait state is preceded by message IEA326I. The catalog entry for the SYS1.LINKLIB data set could not be found on, or could not be retrieved from the system catalog.

Operator Response: Notify the system programmer of this code.

Programmer Response: Probable user error. Ensure that the SYS1.LINKLIB is in the catalog and restart the system.

Problem Determination: Table I, item 30.

00B Explanation: The master scheduler has terminated abnormally during initialization. A dump has been taken to the SYS1.DUMP data set.

Operator Response: Attempt to restart the system.

Problem Determination: Table I, items 2, 16, 29.

00C Explanation: The active nucleus member is not edited in scatter format; this nucleus cannot be loaded by the IPL program.

Operator Response: Probable user error. Report this wait state code to the system programmer.

Programmer Response: Ensure that the IEANUC0x member of SYS1.NUCLEUS has been link-edited with the SCTR option of the linkage editor. If not, link-edit the IEANUC0x member again specifying the Linkage Editor JCL as indicated in the SYS1.NUCLEUS link-editing step of the system generation for this system.

Problem Determination: Table I, items 11, 29. Also do the following:

- Execute the IEHLIST utility program to obtain a directory listing of the SYS1.NUCLEUS data set and have the listing available.
- Have a copy of the last link-editing step for the failing nucleus member, IEANUC0x, available, if possible.
- Have the name of the IEANUC0x member that was selected for the failing IPL process available. Unless altered by the specialized operator IPL procedure, the member name is IEANUC01.

00D Explanation: The master scheduler has terminated abnormally during initialization. No dump was taken.

Operator Response: Attempt to restart the system.

Problem Determination: Table I, items 2, 11, 16, 29.

00E Explanation: The SYS1.NUCLEUS data set or the active member, IEANUC0x, of the SYS1.NUCLEUS was not found on the IPL volume. The system nucleus cannot be located by the IPL program.

Operator Response: Probable user error. If an alternate nucleus was selected during the IPL process through the specialized operator IPL procedure, ensure that the alternate nucleus ID (x of IEANUC0x) has been correctly entered, in its EBCDIC form, at absolute storage location 9. If the error persists, report this wait state code to the system programmer.

Programmer Response: Ensure that the selected IEANUC0x member of SYS1.NUCLEUS, which is IEANUC01 unless altered by the specialized operator IPL procedure, is included in the SYS1.NUCLEUS data set.

Problem Determination: Table I, items 11, 29. Also do the following:

- Execute the IEHLIST utility program to obtain a directory listing of the SYS1.NUCLEUS data set; have the listing available.
- Have the name of the IEANUC0x member, which was not found, available.

00F Explanation: A volume has been IPLed that does not contain IPL text.

Operator Response: Probable user error. Correct the load unit switches to address the correct volume to be IPLed. Verify that the correct volume is mounted. Press the LOAD key and continue.

Problem Determination: Table I, items 11, 29.

013 Explanation: An error occurred during execution of the nucleus initialization program (NIP) from which recovery is impossible. Check the system completion code to determine the problem.

Operator Response: Restart the system.

Problem Determination: Table I, items 11, 17b, 29.

014 Explanation: Recursive translation exceptions have occurred because the master address space's segment table or common page tables have not been initialized correctly or have been overlaid. This code is associated with message IEA999W.

Programmer Response: Probable user error. You should be able to determine why the master address space's segment tables and/or page tables have been overlaid.

Problem Determination: Table I, item 29.

017 Explanation: During the IPL program, a unit check occurred following a successfully started I/O operation. The start I/O operation was either a sense I/O or an attempt to read the home address and record 0 of a track which previously caused a track condition check.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, items 11, 17b, 30.

018 Explanation: During execution of the IPL program, the nucleus was found to be too big for the machine size; the space available for relocation dictionary (RLD) records was exceeded.

Operator Response: Probable user error. Report this message to the programmer.

Programmer Response: Regenerate the system and decrease the size of the nucleus by removing options. If the problem recurs, call IBM for programming support.

019 Explanation: During execution of the IPL program, an unexpected program interruption occurred. IPL did not complete the loading of the resident nucleus. The IPL program is in error, or the storage in which IPL resides is failing.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 30.

01A Explanation: This wait state occurs when an attempt is made to execute multiprocessing modules not included in the nucleus when the system was generated. The multiprocessing modules were not included as a result of specifying the parameter ACRCODE = NO on the CTRLPROG system generation macro instruction. The error condition causing this wait state (only for a system generated with a subset of multiprocessing code deleted) is that a system error caused an incorrect attempt to execute the deleted module.

System Action: The system enters a disabled wait state.

Operator Response: Probable system error. Notify the system programmer of this wait state code.

Problem Determination: Table I, items 11, 29.

01C *Explanation:* Supervisor control has suffered a double recursive abnormal termination in supervisor control super FRR.

Operator Response: Probable software error. Restart the system and report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 13, 29.

021 *Explanation:* During nucleus initialization, an input/output error occurred on the main console following an EXCP operation.

Register 1 contains a pointer to the input/output block (IOB) for the failing EXCP operation.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 30.

022 *Explanation:* A page fault has occurred for a page with a primary and secondary copy (duplexed page) but the primary and secondary devices are either in a quiesced or 'not ready' state. The error occurred in a system facility (such as WTO) invoked by direct access volume verification (DAVV).

Operator Response: Restart the system. If the system is restarted, the current volume verification will not be completed. This could lead to an integrity exposure if an incorrect volume is mounted. Previous to the system restart, the operator should check to be sure that the correct volume is mounted. This can be done by displaying the contents of register 7 which contains the address of the UCB for the device and volume being verified. The UCB in turn contains the device address and volume serial number of the volume that should be mounted.

024 *Explanation:* The system termination facility failed to receive an expected interrupt while attempting to write a record to the SYS1.LOGREC data set.

Operator Response: Probable hardware and programming errors. Check the READ/WRITE switch on all disk devices and restart the system.

Problem Determination: Table I, items 11, 29, or 30.

026 *Explanation:* This code is issued as a result of one of the following:

- A power interruption has occurred, all of real storage has been dumped to one of the power warning data sets (SYS1.WARNA or SYS1.WARNB).

System Action: The system terminates.

Operator Response: Re-ipl to refresh real storage from a warn data set or erase and reformat the data sets.

- The operator has replied 'REST' to message ICFTIM21 and this is an indication that real storage has been successfully refreshed from a warn data set. (Note: In a multiprocessing configuration, an 026, wait state in both CPU's indicates a successful refresh.)

System Action: The system terminates.

027 *Explanation:* This code is issued as result of one of the following:

- The operator replied 'STOP' to one of the power warning initialization messages.

System Action: The system terminates.

Operator Response: Respond to the preceding message and re-ipl the system.

- The operator has replied 'REST' to message ICFTIM21 and this is an indication that real storage has not been successfully refreshed from a warn data set.

System Action: The system terminates.

Operator Response: Re-ipl the system.

- A power interruption has occurred and all of real storage has not been successfully dumped to one of the power warning data sets (SYS1.WARNA or SYS1.WARNB).

System Action: The system terminates.

Operator Response: Re-ipl the system.

029 *Explanation:* NIP has found the time-of-day clock is in error; the system is put into a wait state to allow the setting of the clock.

Operator Response: Re-IPL the system while also holding the TOD-clock switch in the enable-set position in order for NIP to set the clock. The switch needs only to be held until the first NIP message is printed out of the system.

02A *Explanation:* While attempting to signal a logically online CPU, the SIGP resulted in a condition code 3, that is, the hardware could not signal the other CPU because it appeared not to exist.

Operator Response: Place the other CPU in the manual state by pressing the STOP key on that CPU's console. After the other CPU has entered the manual state, initiate the STORE STATUS function on the CPU that entered the wait state. After the STORE STATUS function has been initiated, initiate a PROGRAM RESTART function on the same CPU. When ACR has configured the other CPU out of the system, an ACR has completed message will be sent to the operator's console. Then schedule the IFCEREPO program for execution. Report this wait state code to the IBM representative for hardware support.

Problem Determination: Table I, items 18 and 30.

02B *Explanation:* While attempting to signal a logically online CPU, the SIGP resulted in a condition code 3, that is, the hardware could not signal the other CPU because it appeared not to exist. However, the other CPU had experienced a similar problem and was the first CPU to enter the 02A wait state.

Operator Response: Check the other CPU for a 02A wait state and perform the response as indicated for the 02A wait state.

Problem Determination: Table I, items 18 and 30.

02C *Explanation:* While attempting to signal a logically online CPU, the SIGP resulted in a condition code 3, that is, the hardware could not signal the other CPU because it appeared not to exist. Normally a 02A wait state would have occurred, but DSS is active and no attempt of ACR will be initiated.

Operator Response: Report this wait state code to the IBM representative for hardware support. Restart the system.

Problem Determination: Table I, item 30.

02D *Explanation:* Mass Storage System devices are not supported during Nucleus Initialization Processing. Either the unit address of a 3850 type device, or the VOLSER of a volume mounted on a 3850 type device, was specified for a volume required during system initialization. In the latter case, message IEA314I will specify the unit address of the 3850 type device mounted with the conflicting volume.

Operator Response: Probable user error. Ensure that the unit address of a 3850 type device is not specified as a System

Parameter value and that an online 3850 volume serial number is not the same as that for a volume required during system initialization.

02E Explanation: Auxiliary Storage Manager is unable to function due to unrecoverability or unusual number of permanent I/O errors on necessary paging data set(s).

System Action: System is terminated. Previous messages ILR007I and ILR009I may have been issued. If so, these conditions helped ASM come to the 02E wait state condition.

Operator Response: Re-IPL may help. Re-IPL after replacement of troublesome paging data sets and/or after addition of more paging data sets is best.

Programmer Response: None.

Problem Determination: Table I, items 2, 18, 24, 30.

02F Explanation: A direct access device containing a page data set is unavailable for an I/O operation. The exact reason as well as the device address is in PSAWTCOD at location 1036 (X'40C') whose format is as follows:

Byte 1 reason code:
 X'80' pack mounted does not contain the proper volume serial number as specified in the UCB for this device
 X'40' intervention required for the specified device
 X'20' device not operational
 X'10' permanent I/O error reading the volume serial number for the specified device

Byte 2 reserved

Bytes 3-4 device address

Operator Response: Verify that the proper pack is mounted on the device specified and that the device is ready. Press the restart key on the CPU console in order to resume processing.

Problem Determination: Table 1, items 2,11,24.

030 Explanation: During execution of the nucleus initialization program (NIP), an unanticipated request for abnormal task termination (ABEND) has occurred. The system completion code (in hexadecimal) may be found in bits 36-48 of the wait state PSW.

Operator Response: Probable user error. Record the contents of the wait PSW, and report this wait state code to the system programmer.

Programmer Response: Refer to the description of the ABEND code for further problem determination data.

The ABEND SVC entry in the system's SVC table reflects the address of a 'trap' routine in NIP, and not the address of the ABEND SVC. The registers at the time of the ABEND SVC request are found in the Type I SVC save area.

Problem Determination: Table I, items 11, 29. Have the recorded contents of the wait PSW available.

031 Explanation: The IPL volume resides on a unit for which there is no UCB.

Operator Response: Probable user error. Remove the system residence volume from its present unit and mount it on a unit defined at system generation. Then start the system again.

Programmer Response: Perform an I/O device system generation specifying the addresses of all devices accessible to the system in the IODEVICE macro instruction.

Problem Determination: Table I, items 11, 29.

032 Explanation: A required NIP module has not been found (through BLDL) in the SYS1.NUCLEUS data set.

System Action: The last 12 bits of the EBCDIC name of the missing NIP module will be placed in bits 36-48 of the wait state PSW and may be used to identify the NIP module name;

the values of bits 36-48 and their associated module names are as follows:

Bits 36-48

Value (in hex)	Module name
0F1	IEAVNP01
0F3	IEAVNP03
0F4	IEAVNP04
0F5	IEAVNP05
0F6	IEAVNP06
0F7	IEAVNP07
0F9	IEAVNP09
1F0	IEAVNP10
1F1	IEAVNP11
1F3	IEAVNP13
1F4	IEAVNP14
1F5	IEAVNP15
1F6	IEAVNP16
1F7	IEAVNP17
1F9	IEAVNP19
7D7	IEAVNIPM
AF1	IEAVNPA1
AF2	IEAVNPA2
AF6	IEAVNPA6
AF8	IEAVNPA8
BF2	IEAVNPB2
BF5	IEAVNPB5
BF6	IEAVNPB6
BF8	IEAVNPB8
CF2	IEAVNPC2
ED7	IEAVNIPX

Note: If bits 36-48 of the wait state PSW equal X'7D4' it may imply that the system was loaded using the OS/360 IPL program. The system must be loaded using the OS/VS2 IPL program (IEAIPLO0) distributed in SYS1.SAMPLIB.

Operator Response: Probable user error. Record the contents of the wait state PSW and report this wait state code to the system programmer.

Programmer Response: Ensure that the missing module is included in the SYS1.NUCLEUS data set.

Problem Determination: Table I, items 11 and 29. Also do the following:

- Execute the IEHLIST utility program to obtain a directory listing of the SYS1.NUCLEUS data set and have the listing available.
- Have the recorded contents of the wait state PSW available.

033 Explanation: An I/O error occurred during BLDL processing for a required nucleus initialization program (NIP) module. The NIP module, for which the BLDL process was attempted, may be identified as described for wait state code 032.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 30. Record the address of the IPL device on which the input/output error occurred and have it available. Record the contents of the wait PSW and report this wait state code to the system programmer.

034 Explanation: An operating system that requires one or more of the following features has been loaded on a CPU that does not include the feature(s).

1. System/370 CPU.
2. Dynamic address translation (DAT) feature.
3. Clock comparator feature.
4. CS/CDS instructions.
5. IPK/SPKA instructions.

Operator Response: Probable user error. Either move the operating system to a CPU that includes the required feature(s), or load an operating system that does not require them, such as MVT; and re-IPL.

Problem Determination: Record the contents of the wait PSW and have this information available. Table I, item 29.

036 *Explanation:* An attempt was made to expand the storage initially allocated to the SQA before the initialization of the paging subsystem. This error occurred because of an unusual demand for storage (more than 20,480 bytes) in the SQA during the early stages of the IPL procedure.

Operator Response: Probable user error. If system messages were incorrectly responded to, restart the system. If this error recurs, report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

037 *Explanation:* The DSCB for SYS1.LOGREC, SYS1.SVCLIB, SYS1.PARMLIB, or SYS1.LINKLIB could not be successfully read from the volume where the data set resides for one of the following reasons:

- The data set does not exist on this volume.
- An unrecoverable I/O error occurred during the attempt to read the related DSCB.

Register 1 contains a pointer to the IOB for the failing I/O operation (EXCP). Diagnostic messages explaining the reason for the wait state and identifying the name of the data set involved precede the system wait.

Operator Response: Probable user error. Report this wait state code and the diagnostic messages which preceded it to the system programmer.

Programmer Response: Correct the error that caused the DSCB read I/O operation to fail and restart the system.

Problem Determination: Table I, items 2, 11, 25, 29.

038 *Explanation:* There is insufficient real storage space for the VS2 system to be initialized during nucleus initialization program (NIP) processing.

Operator Response: Probable user error. Report this wait state code to the system programmer.

Programmer Response: Ensure that there is sufficient real storage available for NIP processing. It may be necessary to reduce the number of optional system facilities selected for this system configuration. For further details concerning the real storage requirements for the current configuration, see the OS/VS2 System Generation Reference, GC26-3792 and OS/VS2 Storage Estimates, GC28-0604.

Problem Determination: Table I, items 11, 29.

039 *Explanation:* A required direct access volume could not be successfully mounted because of a conflict with another online volume. The conflict could not be resolved since both volumes were required by the system, and, although both volumes had the same volume serial, the volume that was to be mounted required a different device type than that containing the online volume.

Operator Response: Probable user error. Report this wait state code to the system programmer.

Programmer Response: Change the volume where one of the two data sets resides. If the moved data set is cataloged, the catalog must be updated.

Problem Determination: Table I, items 2, 8, 11, 29.

03A *Explanation:* An error occurred during an attempt to build the LPA (cold start). The diagnostic messages preceding message IEA304W identify the error condition.

Operator Response: Probable user error. Report this wait state code and the preceding diagnostic messages to the system programmer.

Programmer Response: Correct the conditions that caused the LPA cold start to fail and restart the system.

Problem Determination: Table I, items 2, 11, 29.

03B *Explanation:* A module required for continued system operation cannot be found in the system link pack area (LPA). This code can also be the result of attempting to load or reload an ISAM file which DISP = SHR has been coded.

Operator Response: Probable user error. Report this wait state code to the system programmer and save the console listing.

Programmer Response: Examine the console listing to determine the name of the missing module (see message IEA363I). Execute the IEHLIST utility program to obtain a directory listing of the SYS1.LPALIB data set. Examine this list to determine which required system modules are missing. The missing modules should then be copied into SYS1.LPALIB from the starter system libraries or from a similar back-up source. Restart the system and add the missing module to the LPA either by requesting an LPA cold start or by using the MLPA or FIX options.

Problem Determination: Table I, items 2, 11, 29. Have a copy of the contents of the wait PSW available.

03C *Explanation:* The system detected insufficient auxiliary storage available for system operation.

Operator Response: Probable user error. Report this wait state code to the system programmer. Have the console listing available.

Programmer Response: Probable user error.

- 1) During IPL - Ensure that there is sufficient auxiliary storage available for system operation. Re-IPL specifying either larger paging data sets or additional paging data sets.
- 2) Post IPL - Either re-IPL as explained in (1) or execute the AMASPZAP service aid to modify the constant(s) ILRSL0TC and/or ILRSL0TV, which are used by ASM to generate the number of slots needed to back a logical group. To increase the number of slots reserved for each of address space, reduce the constant ILRSL0TC and to increase the number of slots reserved for each VIO data set, reduce the constant ILRSL0TV. Conversely, if too many slots are being reserved, the value of either one or both of the constants can be increased. After modifying the constants, re-IPL.

Problem Determination: Table I, items 2, 11, 29. Have a copy of the contents of the wait PSW available.

03D *Explanation:* During execution of the nucleus initialization program (NIP), subroutine IEAVCSEG returned a nonzero code, indicating one of the following:

- An error in creating a segment table entry.
- An error in creating a page table.
- An error in creating an external page table.

The IEAVCSEG subroutine is used in initializing space for the common service area (CSA) and for the SQA.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

03F *Explanation:* A nucleus initialization program (NIP) function has been improperly invoked.

Operator Response: Probable user error. Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

040 *Explanation:* A request for abnormal task termination (ABEND) has occurred during nucleus initialization program (NIP) processing. The system completion code (in hexadecimal) may be found in bits 31-47 of the wait state PSW.

Operator Response: Probable user error. Record the contents of the wait PSW and report this wait state code to the system programmer.

Programmer Response: Probable user error. Refer to the description of the ABEND code for further problem determination data.

The ABEND SVC entry in the system's SVC table reflects the address of a 'trap' routine in NIP, and not the address of the ABEND SVC. The registers at the time of the ABEND SVC request are found in the SVRB which represents the ABEND SVC.

Problem Determination: Table I, items 11, 29. Have the recorded contents of the wait PSW available.

041 *Explanation:* Devices reserved from the failing CPU were detected during an ACR call to the I/O supervisor. It is necessary for I/O restart to re-reserve the devices on the operative CPU. This can be accomplished only if any CPUs sharing the reserved volumes are put into a stop state. When all sharing CPUs have been stopped, the RESTART key should be pressed to cause the I/O supervisor to continue.

Operator Response: Respond in one of the following manners:

- Stop any CPUs sharing the volumes reserved from the failing CPU and press the restart key on the console of the operative CPU. The devices which are reserved from the failing CPU can be determined by using the console display facility. Obtain the address from location X'10'. Add X'7C' to this address and obtain the address from that location. Add X'60' to this address and obtain the address from that location. This address points to a 160-byte block of storage which contains the I/O restart reserve table. Starting at location X'8', into this table are eight-byte entries containing the unit addresses of the reserved devices. If the table contains more than nineteen entries, the next segment of the table is pointed to by the first four bytes of this table. The table entries contain the device number in bits 1-15 of the first word. (Only CPUs which share devices contained in the table need be stopped.) The stopped CPUs may be restarted when either the ACR completion message IEA858I is written on the console, or when the system enters a nonrecoverable wait state (for example, 043).
- Reload the system. To safeguard data integrity, it is recommended that any sharing CPU be reloaded.

Problem Determination: Table I, items 2, 29, or 30.

042 *Explanation:* The I/O supervisor has found devices reserved from the failing CPU which have no logically online paths from the operative CPU. If the console RESTART key is pressed, the I/O supervisor will attempt to reserve each of these devices on all physical paths.

Operator Response: Take one of the following actions:

- Press the console RESTART key. This will cause the I/O supervisor to attempt to reserve devices down any physical

path to the device. (The devices involved can be determined as indicated in wait state code 041.)

- Reload the system. To safeguard data integrity, it is recommended that any shared CPU be reloaded.

Problem Determination: Table I, items 2, 29, or 30.

043 *Explanation:* The I/O supervisor has found it impossible to reserve a device that was previously reserved to the failing CPU. This is a nonrecoverable wait state. If the console RESTART key is pressed, the I/O supervisor will cause the system to reenter the 043 wait state.

Operator Response: Reload the system after determining which resources should be unavailable to prevent a repetition of the problem. The responsible device can be found by locating the first nonzero entry in the table described in wait state code 041. To safeguard data integrity, it is recommended that any sharing CPU be reloaded.

Problem Determination: Table I, items 2, 29, or 30.

044 *Explanation:* During execution of the nucleus initialization program (NIP), a machine check occurred on a CPU in the configuration. The logical CPU address of the CPU on which the machine check occurred is in bits 40-47 of the wait state PSW.

Operator Response: Probable hardware error. Re-IPL the system.

Problem Determination: Table I, items 2, 11, 30.

045 *Explanation:* During execution of the nucleus initialization program (NIP), a BLDCPOOL request for a cellpool in SQA failed. System initialization cannot continue.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

046 *Explanation:* During execution of the nucleus initialization program (NIP), an unexpected program check occurred.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

047 *Explanation:* During execution of the nucleus initialization program (NIP) for a multiprocessor configuration, a malfunction alert interrupt was received by a CPU in the configuration. The logical CPU address of the CPU that generated the malfunction alert is found in bits 40-47 of the wait state PSW.

Operator Response: Probable hardware error. Record the contents of the wait state PSW and re-IPL the system. Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 30. Also, have the recorded contents of the wait state PSW available.

048 *Explanation:* During execution of the nucleus initialization program (NIP), subroutine IEAVPCB returned an undefined return code.

IEAVPCB allocates a cellpool and a pool of page control blocks (PCB's) for the real storage management (RSM) component of the supervisor.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

04A *Explanation:* The TOD Clock is in the error state. The clock must be set to avoid a machine check being

generated and thus causing the NIP process to terminate in a wait state.

Operator Response: Press the RESTART button and operate the clock security switch for a few seconds. The IPL process will then continue.

050 *Explanation:* ACR has determined that it has been recursively invoked. This wait state code is associated with message IEA856W.

System Action: All CPUs are placed in a wait state.

Operator Response: Probable hardware error on more than one CPU. Take a stand-alone dump and restart the system. Then schedule the IFCEREPO program for execution.

Problem Determination: Table I, items 11, 18, 30.

051 *Explanation:* ACR has encountered an unrecoverable error while recovery was in progress for another CPU. This wait state code is associated with message IEA857W.

System Action: All CPUs are placed in a wait state.

Operator Response: Probable software error exists. Restart the system and schedule the IFCEREPO program for execution.

Problem Determination: Table I, items 11, 18, 29, or 30.

052 *Explanation:* ACR has encountered an unrecoverable error while recovery was in progress for another CPU. This wait state code is associated with message IEA857W.

System Action: All CPUs are placed in a wait state.

Operator Response: Probable hardware error. Take a stand-alone dump and restart the system. Schedule the IFCEREPO program for execution.

Problem Determination: Table I, items 11, 18, 30.

053 *Explanation:* One or more system paging functions could not be initialized. This wait state code is accompanied by message ILR002W.

Programmer Response: Respond as indicated by message ILR002W.

058 *Explanation:* During execution of the nucleus initialization program (NIP), for a multiprocessor configuration, subroutine IEAVSPSA returned a code indicating one of the following:

- A failure to obtain or free the SALLOC lock.
- A failure of a GETMAIN or FREEMAIN for space in SQA. The IEAVSPSA subroutine is used to obtain space for, and build supervisor routine word/save areas for each non-IPL CPU in a multiprocessor configuration.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

059 *Explanation:* During execution of the nucleus initialization program (NIP), a BLDL request returned an undefined return code. System initialization cannot continue.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

05A *Explanation:* During execution of the nucleus initialization program (NIP) for a multiprocessor configuration, the IPL CPU failed to set a synchronization flag for a CPU that it had signaled. The signaled CPU loads this wait state code.

The most probable reason that the IPL CPU failed to set the synchronization flag is a machine check on the IPL CPU.

Operator Response: Probable hardware error on the IPL CPU. Re-IPL the system.

Problem Determination: Table I, items 2, 30.

05B *Explanation:* During execution of the nucleus initialization program (NIP) for a multiprocessor configuration, a non-IPL CPU was signaled by the IPL CPU to begin initializing itself. One of the following has occurred:

- The signaled CPU (the non-IPL CPU) then detected that it was a 'run-away' and loaded this wait state code. The IPL process continues.
- The signaling CPU has detected that the non-IPL CPU could be a 'run-away'. The IPL CPU has attempted to reset the non-IPL CPU with a SIGP initial program reset but without success. It is unsafe to continue the IPL process with the non-IPL CPU in an unknown state. Therefore, the IPL CPU loads this wait state code and terminates the IPL.

A signaled CPU (a non-IPL CPU) is considered to be a 'runaway' if the SIGP instruction for restart to that CPU, executed by the IPL CPU (the signaling CPU), sets the condition code to indicate the SIGP function was unsuccessful. However, the requested function could have, in fact, been started on the non-IPL CPU (the signaled CPU).

This contradiction between the SIGP instruction condition code and the fact that the function has been started is probably due to a hardware error on the non-IPL CPU (the signaled CPU). Thus, this situation could arise on any of the non-IPL CPUs in a multiprocessor configuration.

Operator Response: If the wait state was loaded on the non-IPL CPU, there is a probable hardware error on the signaled CPU. If this CPU is required to be online, execute a VARY CPU ONLINE to it after system initialization is complete, or re-IPL the system. If the wait state was loaded on the IPL CPU, there is a probable hardware error on the signaled CPU. Configure the failing CPU out and re-IPL. If the failing CPU is required to be online, execute a VARY CPU ONLINE to it after system initialization is complete. Register 1 contains the physical address of the failing CPU.

Problem Determination: Table I, items 2, 30.

05C *Explanation:* During execution of the nucleus initialization program (NIP), the pointer to the master catalog could not be obtained from the SYS1.NUCLEUS data set.

The pointer to the master catalog should be in the SYSCATLG member SYS1.NUCLEUS data set. This member is created at system generation time.

Operator Response: Possible causes are I/O errors while attempting a BLDL to find the member, member not found, or I/O errors attempting to read records from the member. Re-IPL the system and report this wait state code to the system programmer.

Programmer Response: IPL a different system and use it to determine if the SYSCATLG member exists in the SYS1.NUCLEUS data set and is in the correct format. Add it to the data set as described in the Catalog Creation section of the SYSGEN SRL.

Problem Determination: Table I, items 2, 17ab, 25c, 26c, 29 or 30.

05D *Explanation:* During execution of the nucleus initialization program (NIP), a data set control block (DSCB) for the master catalog could not be found or could not be read from the volume table of contents (VTOC) of the volume pointed to by the SYS1.NUCLEUS data set.

The pointer to the master catalog is in member SYSCATLG in the SYS1.NUCLEUS data set.

Operator Response: Possible causes could be hardware errors, the wrong volume mounted, or an incorrect pointer to the master catalog in SYSCATLG member of SYS1.NUCLEUS data set. Re-IPL the system and report this wait state code to the system programmer.

Programmer Response: IPL a different system and use it to determine if the VTOC of the volume containing the master catalog is correct.

Problem Determination: Table I, items 2, 25a, 26c, 30.

05E Explanation: During execution of the nucleus initialization program (NIP), an I/O error occurred while attempting to read the master catalog self-describing records.

The first ten records in the master catalog data set describe the master catalog itself. They are the catalog entry for the master catalog.

Operator Response: Probable hardware error. Re-IPL the system and report this wait state code to the system programmer.

Programmer Response: The master catalog must be restored to the proper volume, after the damage to that volume is corrected, or recreated as described in the SYSGEN SRL.

Problem Determination: Table I, items 2, 8 or 26d, 30.

05F Explanation: During execution of the nucleus initialization process (NIP), the master catalog self-describing records were discovered to be damaged (i.e., improperly written over, modified, etc.).

The first ten records in the master catalog data set describe the master catalog itself. They are the catalog entry for the master catalog.

Operator Response: Probable user error. Re-IPL the system and report this wait state code to the system programmer.

Programmer Response: The master catalog must be restored to the proper volume, or recreated as described in the SYSGEN SRL.

Problem Determination: Table I, items 2, 25d or 26b, 29.

061 Explanation: During execution of the nucleus initialization program (NIP), it was discovered that a recovery record was missing from the SYS1.STGINDEX data set.

Operator Response: Report this wait state code to the system programmer.

Programmer Response: Make sure that the SYS1.STGINDEX data set is defined for use by the paging routines, as described in the SYSGEN SRL. Re-IPL the system with the CLPA option and make sure that the volume containing SYS1.STGINDEX is mounted.

Problem Determination: Table I, items 2, 26b, 29.

062 Explanation: During execution of the nucleus initialization program (NIP), a permanent read error was encountered on the SYS1.STGINDEX data set.

Operator Response: Report this wait state code to the system programmer.

Programmer Response: Create a new SYS1.STGINDEX data set for use by the paging routines, as described in the OS/VS2 System Generation Reference, GC26-3792. Re-IPL the system with the CLPA option.

Problem Determination: Table I, items 2, 18, 30.

063 Explanation: During execution of the nucleus initialization program (NIP), a conditional GETMAIN failed.

Operator Response: Probable user error. Report this wait state code to the system programmer.

Programmer Response: Probable cause of this error is that insufficient SQA was available to provide the options requested for this IPL. Another possibility is a system error resulting in excessive demands on the NIP region. The subpool requested may be determined by examining the last GETMAIN entry reflected in the system trace table. If the request was for SQA, the problem can be corrected by specifying a larger value via the 'SQA = ' parameter. If the system was IPLed with insufficient real storage available to back the SQA requests, then it may be necessary to increase the amount of online storage before attempting to re-IPL, or to reduce the number of optional system facilities selected for this system configuration. For further details concerning the real storage requirements for the current configuration, see the OS/VS2 System Generation Reference, GC26-3792 and OS/VS2 Storage Estimates, GC28-0604.

Problem Determination: Table I, items 2, 11, 29.

064 Explanation: During execution of the nucleus initialization program (NIP), a system error (software/hardware) was detected and an attempt was made to enter the Recovery Termination Manager (RTM). This has been trapped by the NIP routines since the system is in a variable state of initialization and, in particular, RTM is not fully initialized. The wait state PSW contains a table entry code in bits 32-47. The code reasons are as follows:

- 01 A module took a branch to ABTERM
- 02 Dynamic Address Termination error occurred.
- 03 Operator pressed the RESTART key.
- 04 Machine check.
- 05 Non-task mode routine issued an SVC.
- 06 Paging I/O error.
- 07 Call to ABTERM issued and no ASID provided.
- 08 Request for memory termination.
- 09 Program check.
- 0A Alternate CPU recovery.
- 0B Cross-memory ABTERM and an ASID provided.
- 0C Entry point in IEAVTRTR for SLIP processing.

Operator Response: Check READ/WRITE switch on direct access devices (must be able to write on system pack for LPALIB during IPL) before reporting this wait state code to the system programmer.

Note: Code 09 may occur on a warm or quick start if the previous cold start failed before or during master scheduler initialization. Attempt to restart the system, specifying 'CLPA' in the reply to message IEA101A Specify System Parameters.

Problem Determination: Table I, items 2, 11, 29. Also have the recorded contents of the wait state PSW available.

065 Explanation: During execution of the nucleus initialization program (NIP), an attempt was made to execute a type 3 or 4 SVC. This was trapped by the NIP routines because at the time the attempt was made, the type 3 and 4 SVCs had not been loaded.

Operator Response: Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 29.

0F0 Explanation: A severe error has occurred in DSS, and DSS cannot be successfully removed from the VS2 system.

Operator Response: Probable software error. Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 13, 16, 20, 27, 29.

OF1 Explanation: One of the following has occurred:

- A program check occurred before DSS was able to save the status associated with a previous program check.
- A supervisor call occurred before DSS was able to save the status associated with a previous supervisor call.

Operator Response: Probable software error. Report this wait state code to the system programmer.

Problem Determination: Table I, items 2, 11, 13, 16, 20, 27, 29.

OF2 Explanation: DSS has been activated on another CPU in a multiprocessor environment. This CPU will be started when DSS returns to VS2.

Operator Response: None.

101 Explanation: The error occurred during execution of a GETMAIN macro instruction for a program executing in supervisor mode. More bytes were requested from the system queue area (SQA) than were available.

Operator Response: Restart the system. If this code occurs frequently, installation action is needed to increase the space allowed for the system queue; more space should be specified at system generation time or in response to message IEA101A during system IPL.

Problem Determination: Table I, items 2, 11, 29.

102 Explanation: The error occurred during execution of a GETMAIN macro instruction for a program executing in supervisor mode. More pages of real storage were requested for the system queue area (SQA) than were available.

Operator Response: Restart the system. If this code occurs frequently, installation action is required to decrease the fixed real storage requirements of the system.

Problem Determination: Table I, items 2, 11, 29.

A01 Explanation: This wait state code is associated with message IGF910W. A hard machine check interruption occurred while the machine check handler was in execution on the only online processor, and no recovery was possible.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, items 18, 30. To recover possible unrecorded machine check error records, see Table I, item 11.

A18 Explanation: IOS received an unsolicited device end interruption for a volume containing a paging data set. Volume serial verification failed for at least one of the following reasons:

- The device address contained a volume with a different volume serial number.
- An I/O error occurred while attempting to read the volume label.
- The device went from ready to not ready status (intervention required) by the time volume verification attempted to read the volume label.

System Action: Enters disabled wait state.

Operator Response: Probable operator error. Ensure that all volumes containing paging data sets are on the same device addresses as they were at IPL time; make sure that all devices

are ready, and press the RESTART key or the PSW RESTART key. If the system reenters this wait state try again.

Note: Repeated failure indicates that a device containing a volume with a paging data set is giving uncorrectable I/O errors while trying to verify the volume containing the data set.

Problem Determination: Table I, items 11, 29 or 30.

A23 Explanation: This wait state code is associated with message IGF910W. A program check interruption occurred while the machine check handler was in execution on the only online processor, and no recovery was possible.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 18, 30. To recover possible unrecorded machine check records, see Table I, item 11.

A24 Explanation: This wait state code is associated with message IGF910W. A loop was detected while the machine check handler was in execution on the only online processor and no recovery was possible.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 18, 30. To recover possible unrecorded machine check records, see Table I, item 11.

A25 Explanation: This wait state code is associated with message IGF910W. A machine check interruption has occurred on the only online processor and the machine check interruption code associated with the interruption indicates that system damage has been sustained.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 18, 30. To recover possible unrecorded machine check records, see Table I, item 11.

A26 Explanation: The wait state code is associated with message IGF910W. A machine check interruption has occurred on the only online processor and the machine check interruption code associated with the interruption is invalid.

Operator Response: Probable hardware error. Restart the system.

Problem Determination: Table I, item 18, 30. To recover possible unrecorded machine check records, see Table I, item 11.

A27 Explanation: This wait state code is associated with processor termination. A machine check interruption or a program check interruption has occurred in a routine externally linked to by the machine check handler.

System Action: Processor enters disabled wait state. Processing continues on other processors.

Operator Response: None.

Problem Determination: Table I, items 18,30. To recover possible unrecorded machine check records, see Table I, item 11.

B01 Explanation: The 3211 utility has completed normally.

Operator Response: Verify the printed image and restart the system.

B02 Explanation: This wait state code is issued by the 3211 utility. A control card is missing or out of order. The JOB and END control cards must be the first and last cards respectively. The DFN, UCS, and FCB statements can be included in any order.

Operator Response: Correct the control card sequence, insert any missing cards, and rerun the program.

Problem Determination: Table I, items 11, 29.

B03 Explanation: This wait state code is issued by the 3211 utility. The JOB statement is incorrect.

Operator Response: Correct the JOB statement and rerun the program. Have the 3211 utility and control cards available.

Problem Determination: Table I, items 11, 29.

B04 Explanation: This wait state code is issued by the 3211 utility. The DFN statement is incorrect.

Operator Response: Correct the DFN statement and rerun the program. Have the 3211 utility and control cards available.

Problem Determination: Table I, items 11, 29.

B05 Explanation: This wait state code is issued by the 3211 utility. The UCS statement is incorrect.

Operator Response: Correct the UCS statement and rerun the program. Have the 3211 utility and control cards available.

Problem Determination: Table I, items 11, 29.

B06 Explanation: This wait state code is issued by the 3211 utility. The FCB statement is incorrect.

Operator Response: Correct the FCB card and rerun the program. Have the 3211 utility and control cards available.

Problem Determination: Table I, items 11, 29.

B07 Explanation: This wait state code is issued by the 3211 utility. The END statement is incorrect.

Operator Response: Correct the END statement and rerun the program. Have the 3211 utility and control cards available.

Problem Determination: Table I, items 11, 29.

B0A Explanation: This wait state code is issued by the 3211 utility. An external interrupt has occurred.

Operator Response: Rerun the program.

B0B Explanation: This wait state code is issued by the 3211 utility. A program check interrupt has occurred.

Operator Response: Have the 3211 utility and control statements available.

Problem Determination: Table I, items 11, 29.

B0C Explanation: This wait state code is issued by the 3211 utility. A machine check interrupt has occurred.

Operator Response: Execute the SEREP program and save the output. Rerun the job.

Problem Determination: Table I, items 14, 30.

B11 Explanation: This wait state code is issued by the 3211 utility. The reader is not online. This will occur when the reader's control unit has no power or when the control unit has been switched off the I/O interface.

Operator Response: Put the specified control unit online and rerun the program. If the error recurs, call IBM for hardware support.

B12 Explanation: This wait state code is issued by the 3211 utility. The reader is not ready.

Operator Response: Ready the reader and rerun the program.

B13 Explanation: This wait state code is issued by the 3211 utility. The reader is not ready.

Operator Response: If the error condition is not apparent, display location 3 for sense information. (An interpretation of sense bit settings can be found in the component description manual for the control unit being used.) Correct the faulty condition and clear the reader check. Rerun the program. If reader checks occur frequently, use a card guide to check for off-punched cards. If the cards are punched correctly and are in good condition and read checks continue, call IBM for hardware support.

B14 Explanation: This wait state code is issued by the 3211 utility. A reader channel error has occurred.

Operator Response: Probable hardware error. Rerun the job.

Problem Determination: Table I, items 12, 30.

B15 Explanation: This wait state code is issued by the 3211 utility. No device end is indicated on the reader.

Operator Response: Probable hardware error. Rerun the job.

Problem Determination: Table I, items 12, 30.

B19 Explanation: This wait state code is issued by the 3211 utility. The printer is not online. This will occur when the printer's control unit has no power, when the control unit has been switched off the I/O interface, or when the control unit is not a part of the system.

Operator Response: Ensure that the address of the printer specified in the DFN statement is correct. Ensure that the control unit is online, and rerun the job. If the error recurs, call IBM for hardware support.

B1B Explanation: This wait state code is issued by the 3211 utility. A unit check has occurred on the printer.

Operator Response: If the error condition is not apparent, display low core location 2-7 for sense information. (An interpretation of sense bit settings can be found in the publication IBM 3211 Printer and 3811 Control Unit Component Description, GA24-3343.) Correct the faulty condition and rerun the job. If the problem recurs, call IBM for hardware support.

B1C Explanation: This wait state code is issued by the 3211 utility. A printer channel error has occurred.

Operator Response: Probable hardware error. Rerun the job.

Problem Determination: Table I, items 12, 30.

B1D Explanation: This wait state code is issued by the 3211 utility. No device end is indicated on the printer.

Operator Response: Probable hardware error. Rerun the job. If the error recurs, call IBM for hardware support.

CCC Explanation: During execution of the QUIESCE function on a uniprocessor, the system is placed in a disabled wait state as normal operation.

System Action: For multiprocessors, the daughter CPUs will enter the stopped manual state in addition to the CCC wait state. The mother CPU will enter the stopped manual state with an unpredictable PSW.

Operator Response: The system may be restarted again by depression of the RESTART key.

E02 Explanation: A permanent input/output error occurred while the IBM 2250 Display Unit was being used as the primary console. At the time the error occurred, no alternate console was available.

System Action: The sense bytes are placed in the two high-order bytes of register 15 and the status bytes are placed in the two low-order bytes of register 15. Then the system is placed in a wait state.

Operator Response: If an alternate console is available, start the system again, using the alternate console. If an alternate console is not available, call IBM for programming support.

Definition: A system wait state is indicated in one of several ways, depending on the model of the CPU being used. It may be indicated by the WAIT light on the operator control section of the system control panel, the appearance of the word WAIT on the display console, or by a meter showing the percent of CPU active time. A system wait state means that no instructions are being processed by the central processing unit. A system wait state is entered when bit 14 of the current program status word (PSW) is set to 1. To exit from this state, an interruption or initial program load must occur to change the current PSW. When a condition arises such that the right half of the PSW does not match any of the explicit wait state codes listed in this publication, an uncoded wait state has occurred.

Explanation: An uncoded wait state may be the result of normal operation; for example, the system may wait for a series of specified operator actions before it can resume processing. The uncoded wait state may also be a symptom of abnormal operation; for example, the system may enter a wait state if a hardware malfunction causes an input/output interruption to be lost.

System Action: The system may exit from an uncoded wait state without operator intervention if an input/output interruption occurs, for example when a user at a terminal signals attention, or when an external interruption occurs, for example when a specified time interval has expired. Otherwise, the system continues to wait for an appropriate operator response before it can continue processing.

Operator Response: If you are able to communicate with the system through the master console device, perform the following actions:

- Enter a DISPLAY R,LIST command. The system will respond with message IEE110I if any operator action is required for previous messages. This could include replies to messages or mounting of volumes. If all system requests have been satisfied you will receive message IEE111I.
- Scan the console log to make sure that all messages requiring operator action have been satisfied. If the JES2 message \$HASPO99 (for all JES2 functions being completed) has been written, there is no more batch work, but TSO users may be logged on.
- Enter a DISPLAY A,LIST command to determine if there are active tasks. The system may be waiting for work.
- Issue a DISPLAY U command. The system will respond with message IEE450I to list the status of devices in the system. The data listed will include indications of BSY (busy), MTP (mount pending), NRD (not ready), and other status

information that may be useful to help you determine why the system is in the wait state. (This command may cause lengthy type-out time.)

- As a last resort, issue the following sequence of commands until the uncoded wait state condition is corrected:
 1. If a SYS1.DUMP data set was created during or before nucleus initialization, issue the DUMP command to obtain a core image dump of the condition causing the wait. Save the output in case the uncoded wait cannot be resolved.
 2. \$H Q to prevent initiation of new jobs.
 3. MN JOBNAMES,T to get information about jobs starting and stopping.
 4. DISPLAY A,LIST to get current job execution status.
 5. CANCEL jobs with DUMP (CANCEL jjj,DUMP) in reverse order of their importance.
 6. DISPLAY A,LIST on a hardcopy console and TRACK A,LIST on a graphics console to monitor the changing environment.
 7. \$A Q to resume normal processing.

If you are unable to communicate with the system through the master console device, perform the following actions:

- Press the RESTART key to activate the system's software recovery mechanisms.
- If the wait conditions are not eliminated, then follow the Problem Determination instructions listed below.

Problem Determination: If the problem cannot be corrected or communication with the system cannot be established, do the following before calling IBM for programming support:

- Record the contents of the current PSW.
- Have the master console sheet available.
- Execute the AMDSADMP service aid program to dump the contents of real storage and selected areas of the page data sets on magnetic tape.
- After restarting the system, execute the GO function of the AMDPRDMP service aid to print the real storage portion of the dump tape produced by AMDSADMP.
- Save both the tape from AMDSADMP (should further information from the tape be required) and the listing from AMDPRDMP.

If you cannot restart the system, execute the hardware system test appropriate for your system before calling IBM for hardware support.

Definition: A loop is the repeated execution of a sequence of instructions until a terminal condition occurs. If the terminal condition does not occur, the sequence of instructions will be endlessly executed, and, in such a case, meaningful work is not accomplished. At times, it may be necessary for the operator to terminate such endless looping by canceling the looping job.

You can recognize a loop by:

- A steady glow in the lights of the system control panel with the SYSTEM light on.
- A pointless recurrence of input/output activity (for example, tape oscillating).
- A job that does not change status for a long period of time.

Explanation: A loop can be the result of several different causes, some of which are listed here:

- A deliberate loop designed by the programmer. This might be a debugging loop built during program testing. Or it might be a loop to poll for the occurrence of some event before it will exit.
- An apparent loop. This kind of situation is not actually a loop. It can occur, for example, when a scientific data reduction program is doing a lengthy repetitive operation on a large array of numbers.
- A loop due to a logic error or coding error by the programmer.
- A loop due to a logic error in a system component.
- A loop due to incorrect setup by the operator.
- A loop due to an error in the control program.
- A loop due to a hardware malfunction.

System Action: The system may exit from a loop, without operator intervention, if the execution time of the program exceeds the time limit specified in the TIME parameter of the EXEC statement or the standard time limit of the RDR procedure (assuming your installation has interval timing included in the system).

Operator Response: If you are able to communicate with the system through the master console device, enter DISPLAY A,LIST. The system will list all active tasks. Use this command frequently. Identical entries occurring on successive uses of DISPLAY A command beyond the estimated execution time of a job indicate a possible loop. If you are reasonably certain the program is in an endless loop, enter CANCEL jjj,DUMP to terminate the job. The programmer will receive a system completion code of 122 with his output. The code will direct him to take appropriate actions. A copy of the master console

sheet should accompany his output if he calls for IBM programming support.

If you are unable to communicate with the system through the master console device, perform the following actions:

- Press the RESTART key to activate the system's software recovery mechanisms.
- If the loop condition is not eliminated, then follow the Problem Determination instructions listed below.

Programmer Response: The programmer whose job is terminated from a loop by the operator or the system (for example, through time expiration or program check interruption) will be directed by the documented instructions for the system completion code that accompanies his job step. This might be system completion code 122, 222, 322, or OCx.

Problem Determination: If communication with the system cannot be established, do the following before calling IBM for programming support:

- Record the contents of the current PSW.
- Press stop. Place the RATE switch to the INST position. Record the contents of the Instruction Counter (also called Instruction Address Register on some models) for each depression of the START pushbutton until you have instruction-stepped through the loop. If the loop is so large that it is impractical to record its entire scope, then record five sequential instruction addresses when the Instruction Counter contains a large value. You may capture the small and large ends of the loop by temporarily placing RATE to the PROCESS position, pressing START then STOP until observation of the Instruction Counter shows the desired range.
- Have the master console sheet available.
- Execute the AMDSADMP service aid program to dump the contents of real storage and selected areas of the page data sets on magnetic tape.
- After restarting the system, execute the GO function of the AMDPRDMP service aid to print the real storage portion of the dump tape produced by AMDSADMP.
- Save both the tape from AMDSADMP (should further information from the tape be required) and the listing from AMDPRDMP.

If you cannot restart the system, execute the hardware system test appropriate for your system before calling IBM for hardware support.

Problem Determination

Problem determination is the activity required to identify a failing hardware unit or program and determine who is responsible for support.

Problem determination is accomplished by using procedures specified by IBM. In some cases, these procedures may be initiated by a message or code which requires operator or programmer response. The response may include the requirement for additional problem-related data to be

collected and will attempt, where possible, to indicate "probable" failure responsibility.

Problem determination information is included for applicable messages and codes under the heading "Problem Determination." Standard problem determination actions are identified as items of Tables I, II, and III. Unique actions are identified following the list of standard actions to be taken. In any case, it is intended that the specified actions be taken before calling IBM for support.

TABLE I

If the problem recurs, follow the problem determination aids specified by the associated message or code before calling IBM for support:	
1. If MSGLEVEL=(1,1) was not specified in the JOB statement, specify it and rerun the job. 2. Save the console sheet from the primary console. In systems with Multiple Console Support (MCS), save a copy of the hard copy log. 3. Save the job stream associated with the job. 4. Save the system output (SYSOUT) associated with the job. 5. Make sure that the failing job step includes a: a. SYSABEND DD statement. b. SYSUDUMP DD statement. c. PL1DUMP DD statement. 6. Make sure that the PARM parameter of the EXEC statement specifies: a. MAP b. LIST c. DIAG d. MSG=AP e. CORE, if applicable f. XREF g. DUMP 7. Execute the LISTIDR function of the AMBLIST service aid program to obtain a list of all members with a PTF or local fix, and save the output. Execute the program against the: a. SYS1.LINKLIB data set. b. SYS1.SVCLIB data set. c. library containing the program that issued the message. d. SYS1.LPALIB data set. 8. Execute the Access Method Services LISTCAT command to obtain a listing of the VSAM catalog. 9. Execute the AMBLIST service aid program to obtain a. an object module listing, specifying the LISTOBJ function. b. a load module map and cross-reference listing, specifying the OUTPUT=BOTH option of the LISTLOAD function.	10. Have a copy of the Message Control Program (MCP) available. 11. Execute the AMDSADMP service aid program to dump the contents of real storage and page data sets on magnetic tape. After restarting the system, execute the appropriate function of the AMDPRDMP service aid program to print the required portion of the dump tape produced by AMDSADMP. Save both the tape from AMDSADMP (should further information from the tape be required) and the listing from AMDPRDMP. 12. Execute the SEREP program, and save the resulting output. 13. Save all the associated output. 14. In the normal response to this message, the programmer/operator was requested to execute a specific program. Save all output from that program. 15. Save the program listing associated with the job. 16. Save the dump. 17. Have the system generation (SYSGEN) output available from a. Stage I b. Stage II 18. Execute the IFCEREPO service aid program, to dump the SYS1.LOGREC data set. Save the resulting output. 19. Save the assembly listing associated with the job. 20. Save the control cards associated with the job. 21. Save the compiler output associated with the job. 22. Save the source input associated with the job. 23. Save the source program listing associated with the job. 24. Run OLTEP diagnostics for the problem device and save the output.

Figure 4. Problem Determination (Part 1 of 3)

(continued)

TABLE I (continued)

25. Execute the IEHLIST system utility program to obtain a list of the a. volume table of contents of the associated volume, specifying the FORMAT option. b. volume table of contents of the associated volume, specifying the DUMP option. c. directory of the associated data set. 26. Execute the IEBTPCH data set utility to a. print the directory of the applicable data set. b. print the applicable data set. c. print the applicable member. d. print the applicable procedure. 27. Have the linkage editor/loader map available. 28. Save the associated volume.	29. Contact IBM for programming support. 30. Contact IBM for hardware support. 31. Save the trace output data set. 32. Print the trace data set with the AMDPRDMP service aid program using the EDIT statement. 33. Print the associated SVC Dump data set, using the AMDPRDMP service aid with the GO statement. 34. Execute the Access Method Services LISTCAT command to a. list the contents of the applicable catalog. b. list the catalog entries for the applicable objects and any related objects.
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TABLE II

GTF for Problem Determination	
Format 1: Tracing Without Prompting for Event Keywords Before reproducing the problem, have the system operator issue a START GTF command specifying tape output, MODE=EXT and TIME=YES. In response to message AHL100A he should type TRACE=opt, where opt is the trace option indicated for the particular message or code, within the text of his reply. When data for the problem has been recorded, run the AMDPRDMP service aid program using the EDIT statement to format the trace output, specifying DDNAME= (ddname of the trace data set). Format 2: Tracing With Prompting for Event Keywords Before reproducing the problem, have the system operator issue a START GTF command specifying tape output, MODE=EXT and TIME=YES. In response to the message AHL100A he should specify the trace options indicated	for the associated message or code within the text of his reply. Then, in response to the message AHL101A, he should specify the event keywords also indicated with the associated message or code. When data for the problem has been recorded, run the AMDPRDMP service aid program using the EDIT statement to format the trace output, specifying DDNAME= (ddname of the trace data set). Format 3: Specialized Tracing Action Before reproducing the problem, have the system operator issue a START GTF command specifying tape output, MODE=EXT and TIME=YES. In response to message AHL100A he should type 'TRACE=SYS,USR'. The DD statements for a data set in error should specify, DCB=DIAGNS=TRACE. When data for the problem has been recorded, execute the EDIT function of AMDPRDMP specifying the options SYS and USR=FFF.

Figure 4. Problem Determination (Part 2 of 3)

TABLE III

If a problem occurs in JES3, one or more of the following steps may be taken to assist in determining the cause:	
1. Take a stand-alone dump of the system by specifying DUMP=PRDMP on the OPTIONS card in the initialization deck and save the output (SYS1,DUMPnn). 2. Take a standard dump of the system by specifying DUMP=JES on the OPTIONS card in the initialization deck and save the output (JESABEND). 3. Take an operating system dump including the nucleus and SQA by specifying DUMP=MVS on the OPTIONS card in the initialization deck and save output (SYSABEND). 4. Save the MLOG listing or get a print of DLOG. 5. Provide listing of initialization deck (JES3OUT). 6. Provide console log from initialization. 7. Ascertain OS/VS level and JES3 PTF level. 8. Provide OS/VS nucleus LOADMOD map. 9. Issue *F T,L=linename, SNAPON and *X RJPSNPS. 10. Issue *F T,L=linename,TRCEON. This will give an RJP event trace on the MLOG console. Save MLOG output. 11. Take a system dump by placing an INTDEBUG,n, message-text\$\$ card in the initialization deck. The message-text field is compared for occurrences of the chosen message. The n field specifies the number of message occurrences before the system is dumped.	12. Issue *X DISPLAY and save output. 13. Issue *X DISPLAY,SNAPS and save the output. 14. Rerun job with //*PROCESS CBPRNT and save output. a. After Interpreter DSP b. After Main Service c. After Input Service 15. Rerun job with EXEC PGM=JCLTEST and save output. 16. Rerun job with EXEC PGM=JSTTEST and save output. 17. Rerun job with TYPRUN=SCAN specified on JOB card and save output. 18. Issue *X DISPDJC when problem occurs and save output. 19. Restart system with specifying a start type of WA (Warmstart with queue analysis) and save output (JES3SNAP). 20. Check SYSMMSG data set for error indications. 21. Provide a listing of the JES3 startup procedure, containing all JCL used to start the subsystem. 22. Save the IOERR trace that will be printed. 23. Rerun job with DEBUG=ALL immediately following PROCESS CI or PROCESS RI card.

Figure 4. Problem Determination (Part 3 of 3)

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OS/VS2 System Codes

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This Technical Newsletter, a part of release 3.7 of OS/VS2, provides replacement pages for the subject publication. These replacement pages remain in effect for subsequent releases unless specifically altered. Pages to be inserted and/or removed are:

53 - 54.2

A change to the text or to an illustration is indicated by a vertical line to the left of the change. Some pages without changes were reprinted in order to decrease the number of page inserts.

Summary of Amendments

This Technical Newsletter documents four new system completion codes: E82, E83, E84 and E85.

Changes have been made throughout this publication to reflect a Service Update to OS/VS2 Release 3.7. In addition pertinent technical and editorial changes have been made.

Note: Please file this cover letter at the back of the manual to provide a record of changes.

